A Model of Personality and Health:

Coping Styles as a Moderator in the Perfectionism-Health Connection

By

Faina Stoliar Ben-David

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Brock University
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Abstract

The purpose of this study was to examine a model of personality and health. Specifically, this thesis examined perfectionism as a predictor of health status and health behaviours, as moderated by coping styles. A community sample of 813 young adults completed the Multidimensional Perfectionism Scale, the Coping Strategy Indicator, and measures of health symptoms, health care utilization, and various health behaviours. Multiple regression analyses revealed a number of significant findings. First, perfectionism and coping styles contributed significant main effects in predicting health status and health behaviours, although coping styles were not shown to moderate the perfectionism-health relationship. The data showed that perfectionism did constitute a health risk, both in terms of health status and health behaviours. Finally, an unexpected finding was that perfectionism also included adaptive features related to health. Specifically, some dimensions of perfectionism were also associated with reports of better health status and involvement in some positive health behaviours.

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Introduction

The purpose of this study was to present a model which explains one aspect of the personality-health connection. The model proposes that perfectionism predicts health status and health behaviours through the moderating role of coping styles. Prior to expanding on this model, the role of personality in health is reviewed, including the rationale and purpose of personality-health research.

Introduction to Personality and Health

Chronic diseases and other health related problems affect millions of individuals and cost even more in medical expenses, missed work, and physical and psychological suffering (Friedman & Booth-Kewley, 1987). Determining which variables play a key role in the development and progression of illness is a fundamental part of learning how to decrease the cost of medical expenses, number of missed days of work, and physical and psychological suffering related to illness. Empirical evidence supports the notion that personality and psychological variables influence immune system functioning and physical health. Continued research on personality and its association with health will further clarify the way in which this relationship functions, and provide explanatory and predictive value. First, by studying personality contributors to illness, theories that explain the role of personality in general body mechanisms (e.g., a general disease-prone personality) can be developed as well as comprehensive theories that explain particular trait-disease connections (Friedman & Booth-Kewley, 1987; Suls & Rittenhouse, 1987). Second, these explanatory models of personality-health can be used as the foundation for developing, implementing, and improving intervention strategies for high-risk populations, to improve psychological adjustment, and have a beneficial effect on the

development, progression, and/or recurrence of somatic illness (Friedman & Booth-Kewley, 1987).

Research on coronary heart disease illustrates the importance of studying the personality-health connection. In the 1970's evidence began to suggest that traditional physiological risk factors for coronary heart disease (CHD), such as elevated blood pressure and serum cholesterol, failed to predict a large portion of new cases (Jenkins, 1978). Further, evidence suggested that a behavioural style called Type A, comprised of competitive drive, aggressiveness, impatience, and a sense of time urgency (Friedman & Rosenman, 1959), was associated with an increased risk of CHD independent of traditional CHD risk factors (Suls & Rittenhouse, 1987). This information was used to implement an intervention strategy for eight hundred myocardial infarction victims who were randomly assigned to receive or not to receive psychological counseling to reduce Type A characteristics. The nature of the intervention involved extensive instruction in progressive muscle relaxation, self-management, and establishing new values and goals. Over a three-year period, results indicated that those receiving counseling had a significantly reduced rate of recurrence of nonfatal myocardial infarction (Friedman, Thoresen, Gill, Powell, Ulmer, & Thompson, 1984). This example illustrates how a theoretical understanding of a specific personality-health connection (Type A behaviour as a CHD risk factor), can lead to the development of a psychological intervention for a specific high-risk group, and have a positive effect on health status. Evidence that psychological interventions benefit individuals on a physical, health-related level is further testimony of the role psychological variables play in physical health.

Empirical evidence supports the personality-health connection, as shown above for CHD, and a variety of other somatic illnesses including diabetes, infectious diseases, immune function, and neurological disorders (Suls & Rittenhouse, 1987). Research makes it clear that, "certain personality variables contribute directly and/or indirectly to the etiology of particular forms of disease or to general illness susceptibility" (Suls & Rittenhouse, 1987). For example, in their meta-analysis, Friedman and Booth-Kewley (1987) found some specific personality-health links. Specifically, they found that the personality characteristics of anxiety, depression, anger, hostility, aggression, and extroversion significantly predicted CHD. In addition, anxiety, depression, anger, hostility, and aggression were personality characteristics that were positively associated with asthma and arthritis, while extroversion was negatively associated with these illnesses. Furthermore, anxiety and depression were significant predictors of ulcers and headaches.

Empirical research has shown that some personality variables influence physical responses to stress, involvement in health behaviours, and somatic health. Personality variables have also been recognized as having an indirect effect on somatic health by influencing the way individuals experience, appraise, and cope with life events and stress. Thus, there are various theories as to how personality affects somatic health. However, why this relationship occurs is not clearly understood. In addition, while personality is related to health, it does not account for a large part of the variance, and is only one risk factor for poor health. Thus, there is a need for comprehensive models of personality-health that explain more of this link.

In fact, literature suggests that mediator and moderator variables explain more of the variability in the personality-health relationship. A mediator variable accounts for the relation between the predictor and criterion and explains how or why such effects occur (Barron & Kenny, 1986). A moderator is a variable that affects the direction and/or strength of the relation between a predictor and a criterion variable. It specifies when certain effects will hold and implies that the causal relation between two variables change as a function of the moderator variable (Barron & Kenny, 1986). The following reviews literature to provides examples of mediating and moderating variables in the personality-health relationship.

Friedman and Booth-Kewley (1987) suggest that disease, unhealthy habits, and behavioural styles may mediate the personality-health link. For instance, they suggest that personality change may result from the disease process. Thus, a diagnosis of cancer may lead an individual to become depressed. Alternatively, unhealthy habits may link personality to health. For example, an anxious person may regularly overeat on high-caloric and sugar-saturated foods, which may result in the development of diabetes. Friedman and Booth-Kewley (1987) also suggest that physiological and behavioural variables may influence the effect of personality on disease. For example, Type A behaviour, involving aggressiveness and impatience, may lead an individual to respond to stress with greater competitive drive and aggressiveness, which may result in hypertension or artery damage. Thus, the person's view of the world, patterns of emotional responding, and psychological resources determine how likely a person is to experience certain physiological responses when confronted by environmental challenges. In addition, personality and health may be related by a sequence of "feedback loops" and

mediating variables. For example, anxiety may lead an individual to drink, smoke, and other "unhealthy" habits (e.g., insomnia), which set in motion physiological processes (partially influenced by an individual's genetic composition) that affect an individual's health. This, in turn, influences the person's anxiety level, and the process continues through a series of feedback loops.

While Friedman and Booth-Kewley provide possible theoretical explanations for the personality-health relationship, empirical research supports that specific variables play a significant role in this relationship. For instance, Lazarus (1966) determined that the way in which individuals cognitively appraise and cope with life changes significantly influences psychological and physical reactions. In addition, Cohen and Lazarus (1983, as cited in Friedman & Booth-Kewley, 1987) found that some coping mechanisms buffer the effect of a stressor. Thus, coping styles, which may be a function of personality, may mediate or moderate the personality-health connection.

Research also shows that the experience of stress and responses to stress mediate the link between personality and somatic health. For instance, stress was found to evoke a "nonspecific bodily response" that is wearing on the biological system (Selye, 1956; Holmes & Rahe, 1967) and decreases immune system functioning (Friedman & Booth-Kewley, 1987). In addition, Engel and Schman (1967) suggest that helplessness or hopelessness reactions in response to stressful events produce physiological reactions in the autonomic nervous system and immune functioning, which increases susceptibility to illness. Thus, personality characteristics may influence the experience of stress and reactions to stress, which may in turn, affect physiological functioning and somatic health.

Specific personality characteristics have also been shown to influence the physiological system and play a role in the development of somatic illnesses. For instance, anger and hostility are believed to result in physiological consequences such as CHD, hypertension, and headaches (Chesney & Rosenman, 1985; as cited in Friedman & Booth-Kewley, 1987). In addition, characteristics such as anger, hostility, depression, and anxiety are associated with elevated levels of corticosteroids and catecholamines, and elevated levels of these chemicals are believed to affect immunosupression and metabolic abnormalities (Goodkin, Antoni, & Blaney, 1986; Krantz, Baum, & Singer, 1983; as cited in Friedman & Booth-Kewley, 1987). Thus, the combination of personality, the experience of stress, reactions to stress, cognitive styles, and coping styles, can affect individuals on a physiological level and influence somatic health. Therefore, a number of variables can function as mediators or moderators to link personality with health.

Finally, psychological disorders may play a mediating role in the personality-health connection. Personality variables have been implicated in affecting psychological adjustment (see Flett, Hewitt, & Blankstein, 1994; Flett, Hewitt, Blankstein, & Koledin, 1991; Flett Hewitt, Blankstein, & O'Brian, 1991; Strauman, 1989). In turn, psychological difficulties have been shown to affect physical health (see Cohen & Rodriguez, 1995; Goldsmith Cwickel, Dielman, Kirscht, & Israel, 1988; Katon & Sullivan, 1990). Furthermore, empirical evidence supports that personality traits, psychological disorders, and health are inter-related. For example, Katon and Sullivan (1990) report a co-morbidity between psychological and physical disorders: 15 to 33 % of medical inpatients suffer from mood and anxiety disorders and 41 % of patients with chronic medical illnesses have had concurrent or recent psychiatric disorders. Thus, while the direction of

the relationship between psychological and physical disorders cannot be determined from this information, it does suggest that psychological and physical disorders have some influence over each other.

Cohen and Rodriguez (1995) provide a model to explain how affective disorders affect individuals on a physiological level and lead to somatic illness. Essentially, affective arousal is proposed to lead to activation of sympathetic-adrenal medullary system (SAM) and hypothalmic-pituitary adreno-cortical axis (HPA), which when excessive or persistent, results in physical illness. For example, SAM has been shown to be related to the development of CHD (Manuck, Kaplan, Williams, & Marsland, as cited in Cohen & Rodriguez, 1995), hypertension (Krantz & Manuck, 1984), and susceptibility to infectious diseases (Cohen and Herbert, in press, as cited in Cohen & Rodriguez, 1995). In addition, HPA activity has been associated with physical complications such as arteriosclerosis (Troxler, Sprague, Albanese, Fuchs, & Thompson, 1977, as cited in Cohen & Rodriguez, 1995), and chronic inflammatory responses such as rheumatoid arthritis and increased hyper-reactivity of the airways in asthmatic persons (McNeil, 1987, as cited in Cohen & Rodriguez, 1995). In summary, Cohen and Rodriguez (1995) present that individuals with affective disorders are susceptible to increased activation of SAM and HPA, which over an extended period of time, has a negative impact on somatic health. Thus, SAM and HPA activation may act as mediators in the relationship between psychological disorders and somatic health.

Cohen and Rodriguez (1995) present a model in which biological, behavioural, cognitive, and social pathways mediate the relationship between affective disorders and somatic problems. Affective disturbances such as high negative affect, depressive mood,

or anxiety activate SAM and HPA, which is believed to contribute to somatic difficulties. Affective disturbances are also proposed to influence preventive health-care practices and result in sleep loss, poor exercise, poor diet, increased smoking, drug use, and increased alcohol consumption, which, after an extensive amount of time, may place the individual at risk. Furthermore, affective states influence cognition so that an individual makes poor health decisions (e.g., fail to do breast exams, mammography, or HIV testing) because of an inability to cope with possible illness. Finally, affective states are proposed to affect social pathways that influence health. For instance, being in a bad mood may make one's social acquaintances avoid interaction with the individual, or the continual need of support from those suffering from affective disorders may deteriorate their support network. In summary, Cohen and Rodriguez's model proposes that affective disorders influence cognitive and social factors and they, in turn, affect illness behaviours (e.g., symptom reporting, care or social support seeking, pain, and disability). Thus, affective disorders influence biological functioning (e.g., activation of SAM and HPA activity) social and cognitive variables (e.g., care or social support seeking, symptom reporting, attention to pain or disability), and health care behaviours (e.g., seeking medical treatment, changing diet or exercise habits). This makes clear that a variety of factors work together to influence the onset and progression of illness, and mediate the personality-health connection.

To summarize, personality has been shown to play a role in health status. It has also been argued that mediator and moderator variables further explain how and why this relationship occurs, as well as the direction and strength of the relationship. This suggests that mediator and moderator models can be developed to account for greater

variability in the personality-health relationship, and provide causal (e.g., mediator) and directional (e.g., moderator) explanations for the personality-health connection.

Introduction to The Model

The purpose of this study was to investigate a model that explains one aspect of the personality-health connection. Specifically, perfectionism, established to be a stable personality trait (Flett, Hewitt, Boucher, Davidson, & Monroe, 1992, as cited by Flett, Russo, & Hewitt, 1994), is proposed to be a significant predictor of health status and preventive health behaviours. This model also attempts to explain how and why this relationship functions by specifying that coping styles moderate the relationship between perfectionism and health status and health behaviours.

This model is unique in a number of ways. First, research which examines the role of perfectionism in somatic difficulties is limited (Frost, Martin, Lahart, & Rosenblate, 1990). In addition, the limited literature available on perfectionism and health examines perfectionism from a unidimensional perspective (Martin, Flett, Hewitt, Krames, & Szanto, 1995). However, this model examines the multidimensional nature of perfectionism and its influence on health status. Finally, Friedman and Booth-Kewley (1987) emphasize that further research in the personality-health area should consider a more detailed analysis of personality that includes attention to coping mechanisms and unhealthy habits. Furthermore, Weidner and Collins (1992) indicate that research on coping styles as determinants of health is rare, and few models exist which test interactions with coping style. Thus, this study is also unique in that the model attempts to explain how and why the perfectionism-health relationship occurs, through the moderating roles of coping styles. The following briefly reviews the conceptualization of

perfectionism, health status, coping style, and health behaviours, and provides a more detailed outline of the model.

I. Perfectionism

Hewitt and Flett (1991a) propose that perfectionism is a multidimensional construct consisting of three distinct dimensions called self-oriented, other-oriented, and socially prescribed perfectionism, which are all important aspects in adjustment and maladjustment. Each dimension of perfectionism involves a cognitive schema unique to that dimension. Self-oriented perfectionism involves setting high, unrealistic standards for oneself; evaluating and censoring one's own behaviour, and striving for perfection in all endeavors while trying to avoid failure. Other-oriented perfectionism reflects beliefs and expectations one holds about others. It is an interpersonal style of perfectionism that involves having unrealistic standards for significant others, stringently evaluating others' behaviour, and placing importance on being perfect on others. Finally, socially prescribed perfectionism involves a need to attain standards and expectations thought to be prescribed by significant others, and these standards are believed to be excessive and uncontrollable. Socially prescribed perfectionists believe that significant others have unrealistic standards for them, evaluate them stringently, and place pressure on them to be perfect. They fear negative evaluations and place importance on avoiding disapproval from others. Their perceived inability to please others often results in negative emotions. Thus, Hewitt and Flett's dimensions of perfectionism represent distinct self, interpersonal, and social perfectionistic motivations: Self oriented perfectionists are motivated by a need to attain self set standards; other oriented perfectionists are

motivated by specific expectations they hold about others; and socially prescribed perfectionists are motivated by a fear of failure and a fear of displeasing others.

Each dimension of perfectionism has a unique cognitive style and motivational component. Thus, the influence of perfectionism on health status and health behaviours is proposed to vary as a function of the individual's predominant perfectionistic expressions and the coping styles expressed by the perfectionist.

II. Health Status

Health status is conceptualized as multidimensional, comprised of "objective" and "subjective" variables such as health care utilization (Feeney & Ryan, 1994), self-ratings of health (Gottlieb & Green, 1984), and symptom complaints (Newcomb & Bentler, 1988). It has been shown that an individual's health can be influenced by several variables, including personality (Kaufman, Wink, & Kmetz, 1995), psychological problems (e.g., Leventhal, Hensell, Diefenbach, Leventhal, & Glass, 1996), and health behaviours (e.g., Wingard, Berkman, & Brand, 1982). This study examined how a specific personality variable, that of perfectionism, affects health status in the dimensions of health service utilization and symptom reports.

III. Health Behaviours

The model in this study also proposed that perfectionism predicts preventive health behaviours. Preventive health behaviours, such as regular sleep, exercise, and diet, have been significantly related to health status (Wilson & Elinson, 1981; Ferguson & Drotar, 1994; Goldsmith Cwickel, Dielman, Kirscht, & Israel, 1988) such that individuals who engage in those behaviours also tend to report better health status. Thus, from

determining variables that predict health behaviours, it is possible to further understand how health status is affected.

Literature that links health behaviours with perfectionism is scarce. However, this model suggests a theoretical rational for why these variables may be related. Perfectionists have been shown to exhibit helplessness (Flett, Russo, & Hewitt, 1994), low frustration tolerance, irrational beliefs, and unrealistic beliefs about self-worth (Flett, Hewitt, Blankstein, & Koledin, 1991). In addition, high self or other imposed standards, fears of failure, and a belief that goal attainment is an indication of self-worth characterize perfectionists. These characteristics, unique to perfectionists, are believed to interfere with the perfectionist's involvement in health behaviours. For example, the need to successfully accomplish self or other prescribed goals and fear of failure drives the perfectionist towards goal attainment. In the process, time or energy may not be devoted for health behaviours. Thus, meals may be skipped or high caloric fast foods may be eaten so that yet another task can be completed or a new goal can be started to fulfill self or other-imposed standards. At the end of the day there may be no time left for exercise or relaxation because, because according to perfectionists, there are too many other goals to be attained first (e.g., career or socially related goals).

In addition, perfectionists may not believe they are required to take part in health behaviours for they may hold the irrational belief that they are required to be perfect in every way. Thus, dental appointments or medical check-ups may be missed due to a lack of time. This avoidance behaviour serves another purpose as it helps the perfectionist cope with potential physical imperfections (e.g., avoiding medical check-ups prevents a diagnosis of medical problems). Furthermore, when perfectionists experience somatic

symptoms (e.g., fatigue, physical pain), they may not cope with them in a successful manner. For instance, the perfectionist prone to express "should or ought" thoughts (e.g., I should not be having this problem, I ought to be healthy), may ignore the problem and avoid taking action to relieve the symptoms (e.g., not visit doctor, not take medication, or not take time off to relax). The perfectionist may also interpret somatic symptoms as a sign of failure, overgeneralize this to all aspects of the self, strive harder to achieve more goals, and perpetuate the cycle.

In summary, characteristics that make up a perfectionist, including motivations, cognitive schema, irrational beliefs (e.g., bad outcomes will follow good ones, failure experiences are generalizeable), beliefs about self-worth (e.g., self-worth is related to achievements), fear of failure, and perfectionistic standards and behaviours, are believed to play an important role in the perfectionist's involvement in health behaviours (e.g., getting enough sleep, exercise, and proper nutrition). This study suggests that the coping styles expressed by perfectionists play a significant role in the extent to which perfectionists participate in health behaviours. That is, a perfectionist's tendency to use positive or adverse coping strategies will influence the degree to which he or she engages in beneficial or adverse health behaviours. Therefore, this model proposes that coping styles moderate the relationship between perfectionism and health behaviours and will explain how and why this relationship occurs.

IV. Coping Styles and their Role in the Model

Coping styles play an important role in the model as they are linked with perfectionism, health status, and health behaviours. The three distinct coping styles examined include problem solving, avoidance, and support seeking. Problem solving

coping involves taking action to change the situation (Lazarus, 1993). Avoidance coping involves focusing on things other than the source of stress (Weidner & Collins, 1992), and support seeking involves using social contacts to deal with stress. These coping styles are used in this model because they are widely recognized by researchers to be associated with adjustment and maladjustment (e.g., Lazarus, 1993).

Perfectionists have been shown to display maladaptive coping styles (Frost, Turcotte, Heimberg, Mattia, Holt, & Hope, 1995; Flett, Russo, & Hewitt, 1994) and a tendency to use maladaptive coping strategies in dealing with daily problems and distress (Flett, Russo, & Hewitt, 1994). Furthermore, the ability to cope with life events has been shown to affect health outcomes (Engel & Schman, 1967; Lazarus, 1993) and involvement in health behaviours (Ferguson & Drotar, 1994; Goldsmith Cwickel, Dielman, Kirscht, & Israel, 1988). Specifically, avoidance coping has been repeatedly shown to be associated with poor health outcomes; problem solving has been linked with better health outcomes; and social support has been inconsistently linked with health outcomes (Blake & Vandiver, 1988; Ferguson & Drotar, 1994; Goldsmith Cwickel, Dielman, Kirscht, & Israel, 1988).

The model in this study proposes that coping styles function as a moderator, and affect the direction and strength of the relationship between perfectionism and health status and health behaviours (Baron & Kenny, 1986). The causal relation between perfectionism and health is expected to change as a function of the moderator variable, coping styles (Baron & Kenny, 1986). Research shows a general trend in the relationship between the dimensions of perfectionism and coping styles. Specifically, socially prescribed perfectionism is solely related to maladaptive coping styles (Frost, Turcotte,

Heimberg, Mattia, Holt, & Hope, 1995; Flett, Hewitt, & Blankstein, 1994; Flett, Russo, & Hewitt, 1994). Self-oriented perfectionism has been associated with both positive and negative coping tendencies (Flett, Russo, & Hewitt, 1994; Flett, Hewitt, Blankstein, & Koledin, 1991). Finally, other-oriented perfectionism has been inconsistently associated with coping styles. This study proposes that health status and involvement in health behaviours will change as a function of the interaction between perfectionism and coping styles. Thus, it is expected that interactions between the dimensions of perfectionism and coping styles will significantly predict health status and health behaviours, and explain the direction and strength of the perfectionism-health connection.

In summary, this unique study proposes a model in which coping styles act as moderators in the relationship between the dimensions of perfectionism and health status and preventive health behaviours. Before setting forth details of the study itself, a literature review is presented on the conceptualization of the key variables in this model, specifically, perfectionism, health status, health behaviours, and coping styles. This will be followed by an examination of the links among the key variables. Finally, the model to be tested will be presented as well as the hypotheses of the study.

Conceptualization of Key Variables in The Model

I. Perfectionism

Perfectionism is a multidimensional construct, comprised of self, social, and interpersonal elements that are associated with the development and progression of maladjustment as well as adjustment. For example, Pacht (1984) viewed perfectionism as a widespread and debilitating problem, associated with a wide variety of diagnostic

labels, including alcoholism, anorexia, obsessive compulsive disorder, Munchausen's Syndrome, depression, dysmorphophobia, and writer's block. In addition, perfectionism has been linked with suicide (Hollander, 1965).

Hewitt and Flett's (1991a) dimensions of perfectionism have been linked with psychological maladjustment, social and interpersonal dysfunctions, and psychological disorders. For instance, self-oriented perfectionism has been linked with self-blame (Hewitt & Flett, 1991a), anxiety (Flett, Hewitt, & Dyck, 1989), subclinical depression (Hewitt & Flett, 1991b), and depressive affect (Strauman, 1989). Socially prescribed perfectionism has been associated with adjustment problems such as state anxiety (Flett, Hewitt, Endler, & Tassone, 1994) depressive symptomology (Hewitt & Flett, 1993), interpersonal sensitivity and feelings of lack of control (Hewitt & Flett, 1991a). In addition, it is related to social and interpersonal dysfunctions such strong needs to gain approval and avoid negative evaluation (Hewitt & Flett, 1991a), demands for social approval, and fears of negative social evaluation (Flett, Hewitt, Blankstein, & Koledin, 1991). Other-oriented perfectionism has been linked with social and interpersonal difficulties such as other-directed blame, lack of trust, feelings of hostility toward others, marital and family problems (Hewitt & Flett, 1991a). In addition, Frost, Martin, Lahart, and Rosenblate (1990) found their dimensions of perfectionism related to pathology. For example, a dimension called *concern over mistakes* was associated with procrastination and general distress, and a dimension called *doubts about actions* was related to symptoms of psychopathology.

Perfectionism has also been linked with positive features. For example, Frost et al. (1990) found a dimension called *personal standards* associated with positive

achievement strivings and positive work habits. In addition, Flett, Sawatzky, and Hewitt (1995) found perfectionism related to positive features such as goal directed behaviour and goal oriented motivation. Specifically, they found perfectionists showed a substantial focus of perfectionism across a variety of goals including performance, relationships, grooming, organization, and tidiness.

The above shows that perfectionism has been linked with both maladjustment and adjustment. There are a number of theorists whose conceptualizations of perfectionism attempt to clarify how perfectionism develops, the dimensions of perfectionism, and why it is associated with adjustment, adjustment difficulties, and pathology. The following examines those views.

There are two diverse theories on the etiology of perfectionism. According to one theory, the striving for perfection is an innate and intrinsic necessity for human development, and exists as an innate and universal striving in every individual. Thus, striving for perfection is a natural human movement upward which motivates individuals to set, achieve, and attain goals (Adler, 1956). In contrast, another theory is that the etiology of perfectionism is connected to the home environment. Specifically, individuals who are perfectionists have been raised in environments where love and approval were conditional on performing at increasing levels of perfection. Failure or mistakes were risks for rejection or loss of love by parents. Therefore, perfectionists' self-evaluations are developed by their home environment and are tied to assumptions about parental expectations, approval, and disapproval (Burns, 1980; Pacht, 1984; Hamacheck, 1978). Nonetheless, literature is still unclear about how and why perfectionism develops (Hewitt & Flett, 1991a).

In general, theorists agree that perfectionism entails setting high standard and the motivation to attain those standards, and that it is comprised of self and social components (e.g., Hewitt & Flett, 1991a). However, there are some differences in the way theorists conceptualize these self and social components. For instance, Adler (1956) states that self aspects of perfectionism involve striving for a career, family, and social goals, while social aspects involve strivings for perfection in ways that benefit society (e.g., becoming an expert in medicine to help others). Alternatively, Frost, Marten, Lahart and Rosenblate (1990) define the "self" dimensions of perfectionism as *concern over mistakes*, *personal standards,* and *doubts about actions* and the "social" dimensions as *parental expectations* and *parental criticism*. Finally, Hewitt and Flett (1991a) conceptualize perfectionism as comprised of self oriented, socially prescribed, and other oriented perfectionism, with the latter being a unique interpersonal element of perfectionism. Thus, all theorists agree that perfectionistic strivings and goal settings can be expressed because of self or social motives. However, Adler conceives perfectionism as strivings towards high standards and differentiates self from social based on who benefits from the goals (e.g., self or society). On the other hand, the latter two theorists, who define perfectionism as strivings towards high standards and motivations for attaining them, differentiate self from social strivings based on the motivations that drives the individual (e.g., if the individual strives towards self created standards, he or she is expressing self components; if the individual is concerned about others seeing mistakes or worried about disappointing significant others, then he or she is expressing social components). Most current literature follows the latter conceptualizations of

perfectionism, accepting that it is the motivations behind perfectionistic behaviours and thoughts that differentiate self from social components.

Theorists have speculated about why some perfectionists experience no difficulties while others suffer from maladjustment and pathology. The reasons are tied to the belief that perfectionism can be expressed in adaptive or maladaptive ways. Essentially, perfectionism can be conceptualized as being on a continuum; individuals can express perfectionistic strivings that range from the adaptive to the maladaptive. On this continuum, beliefs, thoughts, and motivations differentiate adaptive from maladaptive perfectionism. Thus, depending on where an individual lies on this continuum, and the associated beliefs, thoughts, and motivations the individual expresses, few adjustment difficulties or a range of maladjustments may be experienced.

On one side of the continuum lies adaptive perfectionism, referred to by some theorists, as "normal" perfectionism. Individuals who are "normal" perfectionists take pleasure in striving to meet high standards (Burns, 1980) and feel a deep sense of satisfaction and pleasure from their efforts (Hamacheck, 1978). Most importantly, they feel free to be less precise as the situation permits because they evaluate each situation and can lower their perfectionistic standards if necessary (Hamacheck, 1978). In addition, normal perfectionists are accepting of minor flaws in performance (Frost et al., 1990; 1995).

On the other side of the continuum lie maladaptive expressions of perfectionism, referred to by some theorists as "neurotic" perfectionism. Unlike "normal" perfectionists, "neurotic" perfectionists strive for perfection because of low self-esteem and feelings of inferiority that result in an overwhelming need for approval from others. In essence,

these individuals are motivated by a fear of failure rather than a desire for improvement or a need for achievement (Frost et al. 1990; 1995; Hamacheck, 1978, 1987; Hewitt & Flett, 1991a). Thus, they demand a higher level of performance than is possible to obtain, compulsively and unremittingly strive toward impossible goals, and never feel satisfied (Burns, 1980; Hamacheck, 1978, 1987). Furthermore, they measure their worth by their accomplishments and achievements (Burns, 1980). A final important distinction between healthy and unhealthy expressions of perfectionism is that the latter encompass cognitive distortions. Specifically, "neurotic" perfectionists tend to evaluate their experiences in a dichotomous manner and show "all or none thinking" whereby only complete attainment of perfection is acceptable. Furthermore, they tend to jump to dogmatic conclusions that negative events will be repeated endlessly. Finally, they frequently express "should statements" (e.g., should have done it differently, should have worked harder, etc.) (Burns, 1980).

To summarize, most theorists tend to agree that perfectionistic strivings can be healthy or maladaptive. In essence, when individuals maintain high standards across some important areas of life and can be flexible with their standards and goals, perfectionistic strivings can be adaptive and healthy. Conversely, when perfectionistic standards are distorted, unrealistically high, required in all areas of life, and used to protect a fragile self esteem, perfectionism influences maladjustment and is a neurotic form of perfectionism (Adler 1956; Burns; 1980; Frost et al. 1990; 1995; Hewitt, Mittelstaedt, & Flett, 1990).

Conversely, Pacht conceptualizes perfectionism in a manner different from the other theorists. Pacht (1984) conceptualizes perfectionism as unhealthy strivings towards

perfection; thus, according to him, an individual cannot have high standards and strive for perfection in a healthy manner. Thus, strivings for perfection are debilitating goals that result in maladjustments and psychological problems (Pacht, 1984). However, research tends to support the alternative theory that perfectionistic strivings can be healthy or maladaptive; the way in which individuals set and maintain their standards and the motivations behind perfectionistic strivings influence adaptation or maladjustments.

This study uses Hewitt and Flett's (1991a) multidimensional conceptualization of perfectionism for several reasons. First, Frost et al. (1990) conceptualize the dimensions of perfectionism as comprised of expressions of critical self-evaluations, (e.g., *concern over mistakes*, *doubt over actions*, *personal standards*) and parental influences (e.g., *parental expectations*, *parental criticism*). However, Hewitt and Flett (1991a) conceptualize the dimensions of perfectionism as reflecting the direction from which, and toward which, perfectionistic standards are directed. Thus, while Frost et al. (1990) view perfectionism as self and parental related evaluations, Hewitt and Flett's (1991a) dimensions of perfectionism represent distinct self, interpersonal, and social motivations: self-oriented perfectionists are motivated by a need to attain self set standards, other-oriented perfectionists are motivated by specific expectations they hold about others, and socially prescribed perfectionists are motivated by a fear of failure and a fear of displeasing others. Second, Frost et al. (1990) recognize parents as playing a significant role in an individual's development of perfectionistic characteristics. However, Hewitt and Flett (1991a) acknowledge that any significant other can influence an individual's perfectionistic strivings. Finally, Hewitt and Flett (1991a) recognize the existence of a unique social and interpersonal dimension, other-oriented perfectionism, which reflects a

tendency to hold specific perfectionistic standards and expectations for others. This dimension has been empirically shown to exist (e.g., Hewitt & Flett, 1991a, 1991b), yet infrequently referred to in the literature. By using Hewitt and Flett's model of perfectionism, this study was able to explore how specific perfectionistic motivations, that of self oriented, socially prescribed, and other oriented perfectionism, are linked with health outcomes. Specifically, it may determine specific perfectionistic motivations (e.g., self or social) which are linked with poor health outcomes and those which are linked with positive health outcomes. In addition, it may determine if lower levels of perfectionism are related to better health outcomes, while high levels of perfectionism are linked with poorer health outcomes.

As there are various conceptualizations of perfectionism, there also exist a number of measures of perfectionism. Many perfectionism measures are only portions of scales designed to measure broader constructs, and therefore, each of these scales measures perfectionism somewhat differently. For example, Burns (1980) adapted a portion of the Dysfunctional Attitudes Scale into a measure of personal standards and concern over mistakes. Jones' (1968) Irrational Beliefs Test includes a subscale on personal standard setting. In addition, the Eating Disorders Inventory (Garner, Olmstead, & Polivy, 1983) includes a subscale on perfectionism that looks at personal standard setting and parental expectations. All of the above scales measure some aspect of perfectionism. However, the problem is that they do not examine perfectionism from a multidimensional perspective. As well, they are not unique measures of perfectionism. Rather, they examine perfectionism as it relates to other constructs.

Recently, more precise measures of perfectionism have been developed. Thus, there now exist two scales that exclusively measure perfectionism and are sensitive to the multidimensional nature of this construct. First, Frost, Martin, Lahart, and Rosenblate's (1990) Multidimensional Perfectionism Scale examines their five dimensions of perfectionism, *concern over mistakes*, *personal standards*, *parental expectations*, *parental criticism*, and *doubts about actions*. Reliability of the dimensions ranges between .77 and .93 and the reliability of the total perfectionism scale is .90. Hewitt and Flett (1991a) developed a Multidimensional Perfectionism Scale (MPS) which measures self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism. Coefficient alphas for these dimensions were .86 for self-oriented perfectionism, .82 for other-oriented perfectionism, and .87 for socially prescribed perfectionism.

Although there are two multidimensional measures of perfectionism, Hewitt and Flett's measure is used in the current study for a number of reasons. In Frost et al.'s (1993) scale, the Total Perfectionism score reflects a global characteristic of perfectionism that contains some elements of self oriented and self prescribed perfectionism. However, Hewitt and Flett's MPS specifically measures a distinct self-oriented motivational component of perfectionism. Thus, this study can determine if specific motivations, (e.g., self or social) are linked with positive health outcomes and those linked with poor health outcomes. In addition, Frost et al.'s measure correlates with some of Hewitt and Flett's dimensions of perfectionism. Specifically, the variable *personal standards* is highly related to self oriented perfectionism while *parental expectations* and *parental criticism* are highly associated with socially prescribed

perfectionism (Frost et al. 1993). Furthermore, Hewitt and Flett's measure recognizes the importance of all significant others (e.g., siblings, grandparents, spouse, etc.) in an individual's perfectionistic goal setting and motivations, unlike Frost et al. who recognize parents as the exclusive influence. Another important distinction between the two measures is that Frost et al.'s scale does not acknowledge an interpersonal dimension of perfectionism that Hewitt and Flett call other-oriented perfectionism (Frost et al., 1993), which has been associated with various maladjustments (Hewitt & Flett, 1991b). Finally, Hewitt and Flett's measure is designed to measure a range of perfectionistic strivings. Specifically, it is able to discern low from high perfectionism across the three dimensions. Low scores tend reflect no or low perfectionism while extremely high scores reflect more unhealthy forms of perfectionism. As Hewitt and Flett's MPS recognizes that all significant others influence the development of perfectionistic standards (e.g., socially prescribed perfectionism), includes an interpersonal dimension of perfectionism (e.g., other-oriented perfectionism), and measures a range of perfectionistic expressions, it is viewed as a more concise and all-encompassing measure of perfectionism. Thus, it is used in the study to test our model.

To summarize, perfectionism has been theorized by many to encompass self and social dimensions that reflect an individual's strivings, goals, and motivations. While its development is not clearly understood, most theorists recognize that perfectionism can be expressed in healthy or unhealthy ways, and thereby can influence positive adjustment or maladjustment and pathology. Thus, theorists continue to examine the effects perfectionism has on adjustment and maladjustment to better understand how these strivings affect individuals at the self, social, and interpersonal level.

II. Health Status

The conceptualization of health as a multidimensional construct is now widely accepted with psychological and social dimensions complementing traditional medical or disease dimensions (Segovia, Bartlett, & Edwards, 1989). Due to the multidimensional nature of health status, there are numerous methods for its assessment, including examining diagnosed physical disease, biochemical evidence, physiological responses, medical records, emergency room admissions, and the most common of all, self report measures (Newcomb & Bentler, 1987). Self-report measures generally include global ratings of health conditions, perceived susceptibility to illness, and symptom checklists, and they are frequently relied on for large scale social/psychological research on health issues (Newcomb & Bentler, 1987). The following will clarify variables that comprise health status, the dimensions of health status, and examine the information which self-report measures provide.

In reviewing studies on health, it is clear that a number of variables comprise health status. Some are "objective" variables and others are more "subjective". Variables that can be construed as more "objective" and used by researchers to examine health status include health care utilization such as hospitalization or visits to medical doctors (Feeney & Ryan, 1994; Schnurr & Sprio, 1996), use of prescription medication (Feeney & Ryan, 1994), medical records (Leventhal, Hansell, Diefenbach, Leventhal, & Glass, 1996), diagnosed illnesses or chronic conditions (Feeney & Ryan, 1994; Folkman, Lazarus, Gruen, & DeLongis, 1986; Segovia, Bartlet, & Edwards, 1989), and days sick in bed (Gotlieb & Green, 1984; Wilson & Elinson, 1981). The more "subjective" health status variables examined by researchers include self ratings of health (Gottlieb & Green

1984; Kandrack, Grant, & Segall, 1991; Segovia, Bartlet, & Edwards, 1989; Wickrama, Conger, & Lorenz, 1995), symptom reports or complaints (Folkman, Lazarus, Gruen, & DeLongis, 1986; Newcomb & Bentler, 1988; Wingard, Berkman, & Brand, 1982), and subjective reports on limitations on activity or energy level (Gottlieb & Green, 1984; Segovia, Bartlet, & Edwards, 1989; Wilson & Elinson, 1981). The various health status variables examined by researchers make it evident that health status is a multidimensional construct. Therefore, health status needs to be conceptualized as a variety of health dimensions rather than a list of health variables. In fact, empirical research supports the notion that health status is comprised of numerous dimensions, and this is examined in the following.

Segovia, Bartlett, and Edwards (1989) examined health status, health practices, and health care utilization to identify empirically the dimensions of health status. They used ten variables to measure health status, including self health rating, worry over health, number of chronic conditions, level of energy, satisfaction with overall physical condition, emotional status, current self assessed happiness, temporary or permanent disability, restrictions of normal activities, and number of relatives and close friends. Statistical analyses of the variables showed a clear pattern of five distinct factors. Chronic conditions and disability comprised the first factor, called "Disease Factor". Factor two was comprised of happiness and emotional health, labeled "Happiness Factor". Factor three, called a "Subjective Factor" included issues related to subjective opinions of energy level, overall physical condition, and self-health ratings. Factor four consisted of "Restriction of Normal Activity" and Factor five was made up of "Social Contacts". It is interesting that self-rated health significantly correlated with the disease-

oriented variables and the subjective appraisal variables; thus, it was interpreted that self-rated health is a good summary indicator of general health status. In another study examining the impact of substance abuse on health status of young adults, two health dimensions were found (Newcomb & Bentler, 1988). The first was comprised of psychosomatic complaints such as headaches, insomnia, and psychosomatic symptoms. The second dimension was comprised of health problems including trouble with health, unhappiness with health, and health problems.

Similar to Segovia et. al., Newcomb and Bentler (1987) examined the factor structure of fifteen self-report measures of health and health seeking behaviour. Statistical analyses confirmed four separate factors, similar to Segovia et al.'s (1989). The four factors included the following. Factor one, labeled "Physical Hardiness" involved the perceived susceptibility to illness. Factor two, "Subjective Health Problems" included issues related to happiness with health. "Physical Symptomology" made up factor three and included questions related to the experience of symptoms. Finally, factor four, labeled "Health Service Utilization" involved frequency of physician and hospital visits.

Newcomb and Bentler (1987) also investigated sex differences in the factor structure. This is an important consideration as research on health status has found some sex differences. For instance, Segovia et al. (1989) found that women are more likely to report worrying over health and a higher number of chronic conditions. Weidner and Collins (1992) found that women appear to suffer more from psychological distress and minor somatic complaints than men, and that men appear to be more susceptible to life threatening diseases such as myocardial infarction. Similarly, Newcomb and Bentler

(1987) found that women consistently reported more physical problems, less physical hardiness, more physical symptoms, and more utilization of medical services than men. Thus, although it is possible that factor structures differ as a function of sex, Newcomb and Bentler's (1987) study did not support this.

A number of variables have been shown to predict or influence health status. These variables include personality variables, psychological illnesses, and health behaviours. For instance, Kaufman, Wink, and Kmetz, (1995) examined health in mid-life women physicians. They determined that optimistic trusting relationships, low hostility, and planful and efficacious use of intellectual resources predicted good health in mid-life. Leventhal, Hensell, Diefenbach, Leventhal, and Glass (1996) found that anxiety and depressive mood states significantly predicted health status in an older sample.

Finally, health behaviours have been shown to influence health status. Newcomb and Bentler (1988) showed that in young adults poor health status was predicted by adolescent substance use, and that this was ameliorated by social support. In another study, Wingard, Berkman, and Brand (1982) showed that smoking, physical activity, alcohol consumption, weight, and amount of sleep predicted mortality rates. In addition, Wickrama, Conger, and Lorenz (1995) determined that "risky" health behaviours (e.g., poor eating habits, substance use) affected health status, and this relationship was moderated by perceived control at work and positive marital interactions. In conclusion, personality variables, (e.g., optimism, hostility), psychological symptoms (e.g., anxiety, depression), and health behaviours (e.g., substance use, physical activity) play an important role in health status outcomes.

In summary, studies have shown that health status is comprised of numerous variables that can be divided into dimensions in which each represents a distinct component of health status. Physical symptomology or illness, subjective ratings and concerns regarding health, happiness, and health care utilization are distinct dimensions of health status. Self-report health measurements, frequently used in health studies, are capable of providing information on an individual's standing on these dimensions. This study makes use of subjective ratings of health through multiple measures of health status, specifically, physical symptomology and health care utilization.

III. Health Behaviours

The term health behaviours is synonymous with preventive health behaviours, health protective behaviours, and positive health behaviours (Norman, 1985). In general, health behaviours are defined as, "any behaviour performed by a person regardless of his or her perceived or actual health status, in order to protect, promote, or monitor his or her health, whether or not such behaviour is objectively effective towards that end" (Harris & Guten, 1979, p. 18). Behaviours that are considered to be health promoting include medical checkups, dental hygiene, nutritional practices, weight management, regular exercise, lowered alcohol consumption, and avoidance of smoking. The importance in examining these types of behaviours is that they have been linked with health status and mortality (Belloc & Breslow, 1972; Belloc, 1973). The following examines how health behaviours are conceptualized, their stability across time, and their measurement.

One would assume that individuals who participate in one health behaviour are likely to engage in other health behaviours (e.g., one who eats well and exercises might

be assumed to also go for medical and dental check-ups, wear seat-belts, etc.). Conversely, it could be assumed that individuals who do not engage in health behaviours, avoid all health behaviours (e.g., one who smokes, drinks alcohol frequently, and eats poorly also avoids regular check ups and drives recklessly). Thus, research should show substantial correlations among various health behaviours and indicate that those individuals who undertake one health promoting behaviour also engage in other health behaviours (Norman, 1985). To determine if this is in fact the case, Norman (1985) examined published studies which examine relationships between pairs of health behaviours. Norman (1985) summarizes that of the 435 indices, 255 pairs of health behaviours reach significance with an average correlation of .14, a modest strength. He concludes that he finds, "no striking evidence of particular pairs of health behaviours being more consistently or substantially related than others" (Norman, 1985, p. 9). As intercorrelations among health behaviours are modest, it is difficult to predict which health behaviours individuals will engage in by knowing about some of the health behaviours they practice.

The large number and variety of behaviours that the term health behaviours encompasses indicates that the nature of health behaviours is multidimensional. In fact, Norman (1985) reviewed a number of multivariate studies that assessed health behaviours and indicated that health behaviours can be organized into a number of dimensions, or factors, and that within each dimension the health behaviours significantly intercorrelate. From his literature review of multivariate studies Norman identifies a few underlying dimensions. First, alcohol use and smoking were related in a large number of studies so that they loaded on a common factor. In addition, other behaviours found to relate to the

smoking and drinking factor were of a "daring" or "disinhibited nature" such as having numerous sexual partners, use of hard drugs, or not following safety practices (Norman, 1985). This was further supported by Norman's review of intercorrelations among health behaviours which showed that the relationship between smoking and drinking often reached significance with an average correlation of .32. Norman's second consistent finding from his multivariate literature review is that various prevention and detection behaviours correlated (e.g., medical and dental check-ups, TB testing, and pap testing), and were shown to be a common factor called "preventive health care behaviours". The consistency of the relationship among the preventive health care behaviours is further supported by Norman's review of intercorrelations between health behaviours, which showed that intercorrelations between preventive behaviours frequently reached significance and had a mean correlation of .30 (Norman, 1985).

In summary, all health behaviours are not significantly correlated with each other. Therefore, it cannot be concluded that if an individual engages in one health behaviour this person will engage in all other health behaviours. However, Norman's literature review demonstrated that empirical evidence supports the notion that some health behaviours are highly intercorrelated and can be clustered into unique health behaviour dimensions. Two such dimensions are "risk behaviour" and "preventive health behaviour". Thus, in knowing that an individual engages in one risk behaviour, it is possible to assume that this person also engages in other risk behaviours; but it is not necessarily likely this person will be involved in preventive health behaviours, as these behaviours comprise another dimension.

In addition to concerns about the number and type of health behaviours in which people engage, the stability of health behaviours over time is also an issue. A number of studies have shown that there is consistency in involvement in health behaviours over time. For instance, Haefner, Kegeles, Kirscht, and Rosenstock (1967, as cited by Norman 1985), examined the stability of preventive behaviours including medical and dental check-ups, TB tests, and toothbrushing, over a fifteen month period. They showed significant consistency of preventive behaviours. Similarly, Norman (1985) reviewed Breslow and Enstrom (1980) who investigated seven health practices, including physical activity, smoking, alcohol use, sleep, weight management, eating and not eating breakfast, over a nine and a half year period. They found significant levels of consistency in health behaviour for men and women. Norman concluded that empirical evidence on the stability of health behaviour is sparse; however, the few studies that are available support the notion that there is a significant association between health behaviour measures taken at two different points in time.

Finally, measurement is an important concern in health behaviour research. Most studies rely on self-report measures to determine health behaviours (Norman, 1985). One problem lies in the potential difficulty in recalling past behaviour, and errors which may occur in trying to remember distant behaviours or actions which may have been of little importance to the individual at that time (Cannel, Fisher, & Baker, 1965, as cited in Norman, 1985). Yet, in examining health behaviours it is often necessary to require information of "non-recent" events (e.g., last medical check-up) or actions that were of little importance (e.g., how many times an individual showered in a month). Another variable that is believed to influence recall of health behaviours is social desirability.

This suggests that there may be a desire to present oneself in a flattering light and thus, self reported behaviours or characteristics may become distorted (Norman, 1985). As many health related behaviours are subject to social approval or disapproval (e.g., hygiene or alcohol consumption) distortions may be reported either consciously or unconsciously (Cobb & Cannell, 1966; Helsing & Comstock, 1977, all cited in Norman, 1985). Yet, self-report measures are a relatively inexpensive and quick method for collecting data (e.g., compared to asking participant to find witnesses of their health behaviours or asking participants to report health behaviours to the researcher on a daily basis). Thus, they are frequently used to measure health and are regarded as valid measures (Norman, 1985).

In conclusion, health behaviours are important variables to consider in health research because of their relation to health status and mortality. Understanding health behaviours includes investigating how they are related to each other. It was shown that some behaviours could be clustered into dimensions which are interrelated. Specifically, "risk behaviours" and "preventive behaviours" have been identified as distinct dimensions. It can be understood that individuals involved in one health behaviour will likely also be involved in another behaviour within the same dimension. It has also been shown that involvement in health behaviours tends to be consistent over time, thereby suggesting that it may be possible to make predictions about an individual's future involvement in health behaviours.

IV. Coping

Coping has been defined as "cognitive and behavioural efforts to master, reduce, or tolerate the internal and/or external demands that are created by the stressful transaction" (Folkman, 1984, p. 843). In addition, coping is suggested as being a

"stabilizing factor that can help individuals maintain psychological adaption during stressful periods; it encompasses cognitive and behavioural efforts to reduce or eliminate stressful conditions and associated emotional distress" (Lazarus & Folkman, 1984, p. 25, as cited in Holahan, Moos, & Schaefer, 1996). Thus, coping is viewed as cognitive and behavioural efforts aimed at dealing with stress to enhance psychological adjustment. The following outlines a number of issues related to understanding the variable "coping," including clarification and classification of coping styles, variables believed to influence the effectiveness of particular coping styles, and the current controversy over coping.

Coping can be classified in two ways: the "focus of coping" and the "method of coping". "Focus of coping" classifies coping by a person's orientation and activity in response to a stressor. For instance, whether a person approaches the problem, makes active efforts to resolve it, or tries to avoid the problem (Holahan et al., 1996). "Method of coping" classifies coping by whether a person responds to a stressor with cognitive or behavioural efforts (Holahan et al., 1996). Holahan et al. (1996) have combined these two approaches and developed an integrated conceptualization of coping. They propose that coping is divided into the following four categories: 1) cognitive approach, which involves logical analysis and positive re-appraisal; 2) behavioural approach, which involves seeking guidance and support or taking problem solving action; 3) cognitive avoidance, which includes avoidance or resigned acceptance; and 4) behavioural avoidance, involving emotional discharge or seeking alternative rewards.

In this study, coping is conceptualized as comprised of three styles that incorporate Holahan et al.'s coping categories. This includes attentional or problem solving strategies, avoidance or denial, and social support seeking. Attentional or

problem focused coping strategies involve acting on the environment or on oneself to change the troubled person-environment situation (Lazarus, 1993). Avoidance involves focusing attention away from the source of stress (Suls & Fletcher, 1985) and may include strategies such as denial, distraction, and repression (Weidner & Collins, 1992). Finally, social support strategies involve seeking others when confronted with stressful situations.

An important question addressed by coping research is which style is "good" or adaptive and which is "bad" or maladaptive. It is generally recognized that people who rely on approach coping (e.g., problem solving strategies) tend to adapt better to life stressors and experience fewer psychological symptoms (Holahan et al. 1996). For instance, Billings and Moos (1981) noted that strategies involving problem solving and seeking information moderate the adverse influence of negative life changes and stressors on psychological functioning. In addition, social support is linked with staying healthy under conditions of stress (Holahan, et al., 1996). Social resources are believed to "strengthen coping efforts by providing emotional support that bolster feelings of self-esteem and self-confidence, as well as by providing informational guidance that aids in assessing threat and in planning coping strategies" (p. 31, Carpenter & Scott, 1992, as cited in Holahan et al. 1996). Thus, social resources are believed to aid the coping process by providing support, information, and guidance on the use of effective coping strategies. Empirical research confirms this. For instance, Fondacaro and Moos (1987) found that high family support predicts an increase in approach coping and a decrease in avoidance coping over time. In addition, Manne and Zautra (1989) showed that in women with

rheumatoid arthritis, spousal support was linked with more reliance on cognitive restructuring and information seeking, and less with wishful thinking.

Finally, avoidance coping strategies (e.g., denial or withdrawal) are generally associated with psychological distress (Holahan et al. 1996). For example, it was shown that lawyers who used more avoidance coping in response to life stressors expressed more symptoms of psychological and physical strain (Kobasa, 1982, as cited in Holahan et al., 1996). In addition, Rohde, Lewinsohn, Tilson, and Seeley (1990) determined that older adults who relied on ineffectual escapism (e.g., avoidant, helpless, or reckless coping) experienced more current and future emotional distress. Thus, in general, problem solving and social support coping strategies are associated with better adaptation and adjustment, while avoidance strategies are related to less adaptation and maladjustment.

Another important concern in coping research is determining variables that influence the choice of coping strategy and their effects on the outcome being measured (Lazarus, 1993). Personality characteristics, situational factors, and gender are variables that have been shown to influence the choice of coping strategy (Weidner & Collins, 1992). These variables have been shown to play an important role in the effectiveness of particular coping strategies on adjustment. The following presents literature that addresses these issues.

Personality factors that have been shown to influence the effectiveness of coping strategies on adjustment include neuroticism, extraversion, locus of control, and optimism/pessimism. Neuroticism has been linked with maladaptive coping while extraversion has been associated with adaptive coping. For instance, neuroticism is associated with an increase in emotion-focused coping in men and women, as well as a

decrease in task focused coping in women (Endler & Parker, 1990). Parkes (1986) also found that neuroticism related to less problem-focused coping. In addition, McCrae and Costa (1986) showed that extroversion is associated with adaptive strategies such as increased rational thinking, restraint, and a factor called "mature coping".

Locus of control is another variable that has been related to the use of adaptive and maladaptive coping strategies. Locus of control involves beliefs about control over reinforcement and encompasses internal or external beliefs of control. Internal locus of control involves the belief that one has personal mastery over reinforcements and external locus of control involves the belief that reinforcements are due to external factors (as reviewed by Hewitt & Flett, 1996). Literature also indicates that individuals with an external locus of control display maladaptive coping responses and those with an internal locus of control show adaptive responses. For instance, Amirkhan (1990) found that an external locus of control was associated with less problem-solving coping. In addition, personality dispositions believed to be related to an internal locus of control (such as hardiness, personal mastery, feelings of self-efficacy, and personal confidence), have been associated with adaptive coping responses (Holahan & Moos, 1987).

Finally, optimism and pessimism were related to coping styles. Optimism was associated with adaptive coping responses to physical challenges (Scheier, Weintraub, & Carver, 1986). Additionally, Carver et al. (1993) found that optimists tended to use positive coping responses (e.g., positive reframing, acceptance) more frequently, and negative coping responses (e.g., denial, disengagement) less frequently. Finally, Zeidner and Hammer (1992) showed that adults during the Persian Gulf War who expressed high

levels of pessimism also reported higher levels of anxiety, depression, and physical symptoms.

Situational factors that are known to influence the effectiveness of particular coping strategies include the duration and controllability of the stressor. Research shows that avoidant strategies are more effective with short-term stressors while attentional strategies are more effective with long term stressors (Suls & Fletcher, 1985). For instance, avoidance or inattention is suggested to be adaptive in dealing with short term stressors such as pain, blood donations, and uncomfortable medical diagnostic procedures (Suls & Fletcher, 1985). In addition, Levenson, Mishra, Hamer, & Hastillo (1989) showed that denial is predictive of better medical outcomes during acute hospitalization for CHD. However, in the long run, repressive coping has been associated with reduced adherence to medical requirements, prolonged pain and distress, and less resistance to disease (Jamner, Schwartz, & Leigh, 1988).

The effectiveness of approach or avoidance coping is also influenced by the controllability of the stressor. In general, avoidance appears to be more adaptive if the stress is uncontrollable while attentional strategies are more effective if situations are controllable (Weidner & Collins, 1992). For instance, Compas, Malcarne, and Fondacarro (1988) found that when youth believed they had control over the stressor, those who expressed more problem-focused strategies had fewer behavioural problems. However, when the youths believed they lacked control, those who expressed fewer problem-focused strategies exhibited fewer behavioural problems.

To summarize, when stressors are of short-term duration and/or uncontrollable, avoidance or escape strategies appear to be most effective and influence adjustment.

However, problem focused or behavioural strategies appear to be most adaptive under conditions in which stressors are long term and/or controllable. Thus, it appears that individuals capable of being flexible in their choice of coping strategy would show better adaptation than those who have a restricted or rigid coping strategy (Moos in press, as cited in Holahan, et al., 1996).

Research also indicates there are some gender differences in the choice of coping strategies, and this influences the effectiveness of the coping strategy. For instance, women appear to attend to short term events by ruminating and thereby prolonging depressive episodes (Nolen-Hoeksema, 1987, as cited in Weidner & Collins, 1992). However, women have been shown to adjust better to long-term stressful events (e.g., marital separation, divorce) (Reisman & Gersel, 1985, as cited in Weidner & Collins, 1992) and be more attentive to physical threats than men (Viney & Westbrook, 1982). Men appear to use more avoidance strategies. This is adaptive in dealing with short-term stress, but maladaptive in dealing with long term stress (Nolen-Hoeksema, 1987, as cited in Weidner & Collins, 1992). To summarize, gender has been found to influence the choice of coping strategy; however, these results are mixed. Further research is necessary to reach conclusive decisions.

A final concern in coping research is the controversy of whether coping is a style or a process (Lazarus, 1993). When coping is referred to as a style, it is recognized to function as a trait, and like personality dispositions, stable person-based factors are believed to underlie the choice of coping strategy. Thus, if coping is a style or disposition, it is stable or consistent across diverse conditions. However, others view coping as a process and recognize that it functions like a state characteristic so that

temporal and contextual issues influence the choice of coping strategy. Thus, if coping is a process, it is shaped by the environmental context from which it is generated and is therefore likely to be inconsistent over time and across encounters.

It is difficult to determine whether coping functions as only a style or trait. If coping functions purely as a style then research should indicate that coping strategies are similar across situations for any one individual. Similarly, if coping functions only as a process, then research would show that coping skills differ across situations for the same individual. Folkman, Lazarus, Dunkel and Schetter (1986, as cited in Lazarus, 1993) and Folkman, Lazarus, Gruen, and DeLongis (1986) found mixed results in investigating this issue. They examined five major stressful encounters in the same persons over five months and found that some coping strategies were consistent and others inconsistent across stressful encounters. Specifically, social support seeking was inconsistent and positive re-appraisal was consistent.

Numerous studies also exist which consistently show temporal stability of coping styles. For instance, Billingsley, Waehler, and Hardin (1993, as cited in Hewitt & Flett, 1996) administered the COPE scale to 82 students at two points one month apart. Test-retest correlations for each COPE subscale were significant with correlations ranging between .47 and .87. In addition, Amirkhan (1990) found that the test-retest values of his coping measure administered 4-8 weeks apart ranged between .81 and .82 across three subscales of "problem solving," "avoidance," and "social support".

In general, in attempting to determine whether coping functions as a style or process, results are inconsistent. However, Hewitt and Flett (1996) point out that close examination of coping research indicates that scores on particular coping dimensions are

correlated significantly across problem types. That is, in similar situations, people will tend to use similar coping strategies, but it is across different situations that coping strategies differ. For instance, in one study, participants completed daily measures of coping with life problems over 21 consecutive days (Stone & Neale, 1984). Results showed that for similar types of problems individuals showed a stable use of coping mechanisms. Furthermore, those participants with recurring problems tended to rely on the same coping mechanism when the problem returned. In another study, Compas, Forsyth, and Wagner (1988) observed weekly ratings for achievement and interpersonal stressors over four weeks. They found that there was a tendency for participants to use a consistent coping pattern when rating the same problem on different occasions. Furthermore, they noted consistency was lower when comparing ratings across two different problem types. They concluded that coping styles consistency exist across consistent situations.

In summary, coping is conceptualized as comprised of both enduring personal and more changeable situational factors (Holahan et al., 1996). Current research emphasizes that both the person (style) and the environment (process) interact, and the situation as well as the individual's relational meaning of it influences the choice of coping strategies (Lazarus, 1993). Thus, the current understanding is that coping functions as a style and is relatively stable across situations. Changes in the environment may influence the choice of coping strategy so that it varies, and appears to function as a process.

In conclusion, it has been shown that coping styles are categorized into approach or avoidance, cognitive or behavioural strategies. Problem solving, avoidance, and social support seeking are three styles that take into account those categories and are examined

by the model proposed in this study. Research indicates that problem solving and social support are more adaptive strategies while avoidance coping is a maladaptive strategy. However, the effectiveness of coping strategies has been shown to be partly determined by situational variables such as duration and controllability of the stressor as well as personality factors. Finally, it was discussed that individuals cope with a particular "style" or "disposition" across similar situations indicating that coping is a process determined by contextual factors.

Conceptualizing the Links Among the Variables in The Model

The above presented details about the conceptualization of the key variables in the model tested in this study. Thus, they establish the groundwork for the following section, which details the relationships among the key variables in this model. First, perfectionism will be examined in relation to health status, followed by a review of the relationship between coping and health status. Finally, the relation between perfectionism, coping, and health behaviours will be presented. By illustrating the interrelationships of perfectionism, coping, health behaviour, and health status, this section will provide support for the model tested in this study.

I. Perfectionism and Health Status

Perfectionism has been shown to be associated with psychological health and maladjustment. However perfectionism's relationship with health also extends to physical health. For instance, in his literature review on perfectionism, Pacht (1984) asserts that perfectionism is associated with various disorders such as erectile dysfunction, irritable bowel syndrome, abdominal pain in children, ulcerative colitis,

chronic olfactory paranoid syndromes, and Type A coronary-prone behaviour. In addition, Morris (1961) found that a group of asthmatic children was characterized by parents who held perfectionistic standards for them, suggesting that parents' perfectionistic standards may influence their children's health. In addition, research has directly linked high levels of perfectionism with somatic symptoms such as pain (Van Houdenhove, 1986), headaches (Stout, 1984), migraine headaches (Burns, 1980) and cancer (Temoshok, 1987). Thus, perfectionism has been directly related to a variety of somatic health problems.

There is evidence that perfectionism and health are related through indirect paths, such as the mediating role of psychological maladjustments. One example is Type A behaviour. Type A behaviour, characterized by competitiveness, aggressiveness/hostility, speed, impatience, and a tendency to engage simultaneously in two or more activities, is considered to be a coronary prone behaviour pattern (Flett, Hewitt, Blankstein, & Dynin, 1994). In fact, empirical research has established a link between Type A behaviour and susceptibility to coronary attacks (Friedman & Booth-Kewley, 1987; Abbott and Sutherland, 1990). In addition, Flett, Hewitt, Blankstein, and Dynin (1994) found a significant relationship between socially prescribed perfectionism and Type A behaviour. They suggest that Type A persons perceive the standards of socially prescribed perfectionism as unrealistic and this creates feelings of helplessness or hopelessness. Flett, Hewitt, Blankstein, and Dynin (1994) explain that elements of socially prescribed perfectionism contribute to psychological distress in Type A persons. If so, Type A individuals experience psychological distress related to socially prescribed perfectionism, and therefore, this dimension of perfectionism may be a factor in the susceptibility to

coronary attacks in Type A individuals. For example, individuals expressing Type A behaviour who show characteristics of socially prescribed perfectionism (e.g., the need to fulfill perceived expectations of others, fear of failure, fear of being negatively evaluated), may drive themselves harder, work longer hours, and engage in numerous activities to achieve the perceived goals of perfection. Because of these behaviours, they may become more hostile, competitive, and impatient toward significant others perceived to be prescribing perfectionistic goals and to people or events that impede achieving their goal. The Type A behaviours may result in prolonged physiological arousal, making them susceptible to illness.

Another way in which perfectionism and somatic health are indirectly related is through psychological maladjustment. One example is that of depression. For instance, perfectionism has been implicated in the development of depression, (for example, Hewitt & Flett, 1991a, 1991b; Hewitt & Flett, 1993), which has, in turn, been related to somatic problems (Cohen & Rodriguez, 1995; Martin et al., 1996). In one study, depression, socially prescribed perfectionism, and self-oriented perfectionism were significantly related to reports of somatic symptoms (Martin, Flett, Hewitt, Krames, & Szanto, 1996). In addition, socially prescribed perfectionism was significantly associated with higher levels of depressive symptoms. Martin et al.'s results indicate that students characterized by high levels of socially prescribed perfectionism report greater depression and health symptoms. Although it is impossible to discern the direction of these associations (e.g., if perfectionism causes depression which causes health symptoms), these results indicate that socially prescribed perfectionists who report depressive symptomology also experience health symptoms.

Some literature attempts to explain how psychological maladjustment mediates the relationship between perfectionism and physical health problems. Hewitt and Flett (1993) propose that the impossibly high standards, constant striving, overgeneralization of failure, and all or none thinking associated with perfectionism expose perfectionists to prolonged levels of stress. Empirical research supports the notion that exposure to unrealistic demands is associated with increased levels of stress and physiological arousal (Gellatly & Meyer, 1992). In turn, a prolonged state of stress and physiological arousal has been related to somatic problems (Cohen & Rodriguez, 1995). Thus, extreme perfectionists, who perceive a need to constantly set, strive, and attain unrealistic goals may be exposed to high levels of stress and physiological arousal, and this makes them susceptible to illness. This suggestion is supported by Martin, et al. (1996) who found that students characterized by high levels of socially prescribed perfectionism and low levels of self-efficacy reported greater depression and health symptoms. They suggest that low levels of self-efficacy in individuals with high levels of socially prescribed perfectionism influence distress levels and health problems. It is also a possibility that the perceived perfectionistic expectations and a feeling of lack of control over them expose perfectionists to a prolonged state of stress, which results in the experience of physical illness symptoms.

In summary, the above has introduced the idea that perfectionism and health are related. Specifically, perfectionism is associated with health problems through the mediating role of psychological maladjustment such as depression, Type A behaviour, and self-efficacy. Cohen and Rodriguez (1995) support the link between psychological and physical disorders: affective arousal leads to the activation of SAM and HPA, which

when excessive or persistent, can result in physical illness (Cohen & Rodriguez, 1995) such as coronary heart disease (Manuck, Kaplan, Williams, & Marsland, as cited in Cohen & Rodriguez, 1995), hypertension (Krantz & Manuck, 1984), susceptibility to infectious diseases (Cohen & Herbert, in press, as cited in Cohen & Rodriguez, 1995) atherosclerosis (Troxler, Sprague, Albanese, Fuchs, & Thompson, 1977 as cited in Cohen & Rodriguez, 1995), and chronic inflammatory responses such as rheumatoid arthritis and increased hyper-reactivity of the airways in asthmatic persons (McNeil, 1987 as cited in Cohen & Rodriguez, 1995). Thus, individuals with affective disorders are susceptible to increased activation of SAM and HPA, which negatively affects their physical health. As perfectionism has been implicated in affective disorders (e.g., depression and anxiety) as well as in increasing a state of physiological arousal, it is conceivable that perfectionism influences health status. Thus, this study suggests that high levels of perfectionism are linked with poorer health status. The model presented in this study attempts to further explain this relationship by proposing a new and an unexplored link between perfectionism and health, that is, through the moderating role of coping styles.

II. Perfectionism and Health Behaviours

There is little literature or empirical evidence which links perfectionism with health behaviours. However, from understanding characteristics of perfectionism, the relationship between perfectionism and health behaviours can be understood. The following outlines how perfectionistic standards and irrational beliefs expressed by perfectionists are believed to influence health behaviours.

Perfectionists have been shown to be prone to irrational beliefs, such as self-directed "shoulds" (e.g., I should be perfect in everything, I should not make mistakes),

other-directed "shoulds" (e.g., you should be perfect, you should not fail in your goals), "awfulizing" beliefs (e.g., bad outcomes will always follow good ones, if I fail at this I will fail at everything), low frustration tolerance, and unrealistic beliefs about self-worth (e.g., I am only worthwhile if I succeed at everything I do) (Flett, Hewitt, Blankstein, & Koledin, 1991). These irrational beliefs are likely to influence accurate perceptions and assessments of environmental challenges (e.g., stress involved in goal attainment), need for preventive health behaviours (e.g., eat three meals a day, exercise weekly, go for physical check-up), and need for health behaviours (e.g., visit doctor for physical symptoms such as fatigue, sore throat). As perfectionists have been shown to express high self standards, fear of failure, and a belief that goal attainment is an indication of self worth, it is proposed that the combination of perfectionistic standards and irrational beliefs influence the perfectionist's involvement in health behaviours.

The following illustrates how the relationship between perfectionism and health care behaviours is suggested to function. The perfectionist is generally an individual who is over-involved in behaviours directed at attaining perfectionistic goals. Thus, in the process of trying to attain these goals, self-care behaviours may be overlooked. For instance, there may not be enough time or energy to be directed at exercise, nutrition, sleep, or medical/dental check-ups. Furthermore, irrational beliefs may influence the perfectionist's lack of involvement in health behaviours. For instance, self-directed "shoulds" and unrealistic beliefs about self worth may be held by the perfectionist, such as, "I should be perfect in every way", "I should be physically perfect without effort", and "I expect perfection from my body". These beliefs are proposed to interfere with the perfectionist's involvement in health behaviours (e.g., eat well, exercise regularly, or seek

regular medical/dental check-ups). Furthermore, perfectionistic motivations and irrational beliefs are believed to influence involvement in health behaviours even when illness symptoms are experienced. For instance, when flu symptoms, headache, or fatigue are experienced, the perfectionist may not have time in his/her schedule to engage in health behaviours (e.g., go to a doctor or rest). Additionally, irrational beliefs such as "I don't have time to be ill, I have too many goals to accomplish today" or "I should be perfect and should not require health care" may also prevent the perfectionist from taking health care action. Irrational beliefs and overgeneralizations such as "I am a failure, I can't even stay healthy to complete these goals, I must be a failure to everyone" may also be expressed and interfere with seeking health-care. Finally, health-care utilization may be regarded as a sign of weakness, or admittance of failure, and therefore avoided. Thus, the perfectionist may react to symptoms by ignoring them, which may prolong symptoms and possibly worsen their health status.

In conclusion, there is little empirical evidence that directly relates perfectionism with health behaviours. However, perfectionistic motivations, the need to fulfill the perfectionistic standards imposed by self or others, fear of disappointing others, fear of failure and irrational beliefs are proposed to influence health behaviours and health-care utilization. Therefore, it is expected that individuals who express high levels of perfectionism will report poor involvement in health behaviours. In addition, specific coping responses have been linked with greater involvement in health behaviours while other coping responses have been linked with poor involvement in health behaviours; consequently coping styles are expected to interact with the dimensions of perfectionism

to indicate the conditions under which perfectionists are more or less involved in health behaviours.

III. Coping, Health Status, and Health Behaviours

Theorists propose that coping strategies can be adaptive or maladaptive, and suggest that the way in which a person responds to and copes with stress has important links with health and illness. For instance, a tendency to engage in avoidance coping rather than active coping is associated with health impairment. Research evidence implicates personality characteristics and coping mechanisms in mediating the stressor-illness relationship (e.g., Cassel, 1976; Gore, 1978; Pearlin, Lieberman, Menaghan, & Mullan, 1981). The following examines literature, which implicates coping strategies as an influence in health status and health care behaviours.

Ferguson and Drotar (1994) examined pediatric and internal medicine residents to determine the relation between distress, coping style and health related behaviours (e.g., diet, exercise, recklessness) and symptoms (e.g., colds, aches, pains, general poor health, digestive system problems). They found that more highly distressed staff reported more physical symptoms and less adequate health care practices than less distressed staff. Further, these highly distressed staff reported more denial and disengagement coping. Although the direction of the connection among these variables cannot be inferred, the relationship was such that high distress and avoidance coping were related to greater physical health symptoms and poor health care practices. This suggests that avoidance or denial coping may be predictive of poor health and preventive health behaviours. Further, they noted sex differences in the level of distress and number of health symptoms

reported, with women reporting higher on both. Women also reported using more social support and less problem solving coping than men.

Blake and Vandiver (1988) investigated stressful life changes and coping in relation to health. They viewed the impact of stress as mediating the relationship between coping and health, thus, stress was controlled for in their regression analysis. Results indicate that active problem solving was predictive of better health status, avoidance coping was predictive of poor health, and social support was not a significant predictor of health status. A number of significant interactions were also found. Low scores on social support interacted with high scores on avoidance coping, and high levels of stress interacted with high scores on avoidance coping, in predicting poor health. Thus, coping strategies were shown to be vulnerability factors that impair health. Specifically, problem solving coping predicts better health status while avoidance coping predicts poor health status.

Finally, Goldsmith Cwickel, Dielman, Kirscht, and Israel (1988) examined the role of social integration and coping style in health and health behaviour. They found social integration and active coping style predicted better global health and preventive health practices (e.g., sleep, exercise, nutritional practice, etc.). They also found significant sex, education, and age differences. For men, education level was positively related to health practices and health behaviour. For women, age was positively related to health practices and negatively related to preventive health behaviours. As well, older, less educated women were more likely to report chronic disability.

In summary, the above supports that specific coping strategies are predictive of specific health outcomes. That is, avoidance coping is a significant predictor of poor

health or health symptoms and poor health care behaviours, while problem solving is predictive of better health or fewer health symptoms and better health care behaviours. These results are consistent with those of Billings and Moos (1981) and Cronkite and Moos (1984). Second, sex, education, and age differences were found, although inconsistently. These results are similar to those of Verbrugge (1985) who found men and women differ in health behaviours and health status. Finally, although Blake and Vandiver's (1988) study did not find social support a significant predictor of health, Goldsmith Cwikel et al. did find social support predictive of better health. This is supported by Gove, Huges, and Style (1983, as cited in Goldsmith Cwikel et al. 1988) who also found that social ties had a positive effect on health. In the model used in this study, coping styles are used as a moderator because of its unique relationship with health status and health behaviours.

IV. Perfectionism and its Relation to Coping

It was mentioned that coping research focuses on determining variables that influence the choice of coping strategy, and the effects of these strategies on adaptation (Lazarus, 1993). Similarly, the study of perfectionism includes examining its influence on the choice of coping strategy and on adjustment. Literature has shown that perfectionism influences the type of coping strategy used and empirical evidence supports that, in some instances, coping styles function as a mediator or moderator in the perfectionism-health relationship. The following reviews literature to examine the relation between perfectionism and coping. This will be followed by a brief review of literature that examines perfectionism and psychological maladjustment and the

mediating or moderating role of coping, to support this study's use of coping style as a moderator.

Research indicates that the relationships between perfectionism and coping are such that some perfectionists report coping difficulties. For instance, Flett, Hewitt, and Blankstein (1994) found that socially prescribed perfectionism was significantly related to maladaptive coping styles including avoidance and low problem-solving confidence. Similarly, Frost, Turcotte, Heimberg, Mattia, Holt, and Hope (1995) found that individuals scoring high on a perfectionistic feature they call *concern over mistakes*, (which is related to socially prescribed perfectionism), also reported negative reactions to mistakes such as a tendency to interpret mistakes as failure, and beliefs that one will lose respect of others after failure. Furthermore, participants who scored high on *concern over mistakes* showed negative reactions to mistakes, poor skills for coping with mistakes, low frustration tolerance, and overgeneralizations of failure. Frost et al. suggest that these tendencies influence the perfectionist's ability to cope with stress and life events. This supports Flett et al.'s (1994) study in which socially prescribed perfectionism was related to maladaptive coping styles.

In another study, Flett, Russo, and Hewitt (1994) found socially prescribed perfectionism associated with an absence of positive emotional and positive behavioural coping while self-oriented perfectionism was associated with higher levels of positive behavioural coping. More specifically, socially prescribed perfectionists showed a tendency to manifest categorical and superstitious thinking, such as the tendency to dwell on negative outcomes, overgeneralize failures, and exhibit a pessimistic tendency to believe good outcomes will be followed by bad ones. Self-oriented perfectionists also

expressed a lack of self-acceptance thoughts, a tendency to fret and ruminate about negative outcomes, depressive symptoms, and difficulty in trusting others. In summary, socially prescribed perfectionists showed a tendency to use ineffective coping strategies, while self-oriented perfectionists reported both positive and negative coping styles. This is supported by Flett, Hewitt, Blankstein, and Koledin (1991), who found self-oriented perfectionism associated with low frustration tolerance. Thus, socially prescribed perfectionism is associated solely with maladaptive coping strategies while self-oriented perfectionism is related to both adaptive and maladaptive coping styles.

Hewitt, Flett, and Endler (1995) examined perfectionistic tendencies and coping in a clinical sample. They found that both socially prescribed and self-oriented perfectionists expressed maladaptive coping strategies. Gender differences were found such that socially prescribed perfectionism was correlated with emotion oriented coping in men, and socially prescribed perfectionism was correlated with less social diversion coping for women. In summary, men showed a tendency to respond emotionally to stressful situations (e.g., focusing on negative affective reactions, rely on wish fulfillment and self-blame) while women showed a tendency to avoid social support out of fear of being judged and disappointed (Hewitt, Flett, and Endler, 1995). This finding in a clinical sample is further evidence that perfectionism is related to maladaptive coping styles.

Flett, Russo, and Hewitt (1994) believe that the relationship between perfectionism and adjustment is mediated by attempts to cope with daily problems. As empirical evidence shows that perfectionism is related to maladaptive coping styles, it would be expected that perfectionists would experience adjustment difficulties as a result

of using maladaptive coping strategies. In fact, empirical evidence supports the notion that maladaptive coping styles mediate or moderate the relationship between perfectionism and maladjustment. The following briefly reviews the mediating and moderating role of coping styles in relation to depression and procrastination, to validate the use of coping styles as a moderator in this study.

It has been proposed that perfectionists experience an increase in the frequency and intensity of failure experiences because of their unrealistically high standards that are nearly impossible to attain. Martin, Flett, Hewitt, Krames, and Szanto (1996) tested the self-regulation model which suggests that the perfectionist's inability to deal or cope with the frequent and intense failure experiences predisposes them to experience depression. They found that socially prescribed perfectionism and self-efficacy significantly interacted in predicting depression. According to the authors, these findings support the self-regulation theory because greater depression was reported by students characterized jointly by high levels of socially prescribed perfectionism and low levels of self-efficacy (Martin et al., 1996). Thus, in this study, self-efficacy, involving the ability to cope with failure experiences, functioned as a moderator in the perfectionism-depression relationship.

According to the diathesis-stress theory, perfectionism and maladjustment are related through the mediating role of coping, and life stress mediates the relationship between perfectionism and maladaptive coping. Hewitt and Flett (1993) investigated the role of perfectionism and interpersonal and achievement hassles in depression to test this model. They found that self-oriented perfectionism solely interacted with achievement hassles to predict depression in a depressive and heterogeneous samples. Socially

prescribed perfectionism and interpersonal hassles significantly interacted in the depressive sample while in the heterogeneous sample, socially prescribed perfectionism interacted with achievement hassles to predict depression. Thus, coping with interpersonal/achievement stress and failure experiences relates perfectionism to poor adjustment, specifically depression.

Coping style also plays a role in the relationship between perfectionism and procrastination. Ferrari (1992) showed that perfectionism and procrastination were associated only when individuals expressed the importance of external, social expectations about what others think. The author suggests that procrastination is used as a method with which to cope such that by avoiding their task, perfectionists avoid the experience of failure and can use the excuse of lack of time for not fulfilling expectations of others. Thus, coping (e.g., with expectations of others and fear of failure) may function as a moderator in the perfectionism-procrastination relationship.

The above outlined that perfectionism and coping styles are related such that some perfectionists experience coping difficulties. Specifically, self-oriented perfectionism is associated with both positive and negative coping skills while socially prescribed perfectionism is solely related to poor coping tendencies. Empirical evidence was also reviewed to support the notion that some coping strategies moderate the relationship between perfectionism and psychological maladjustment, while other coping strategies mediate this relationship. The inability to cope with daily problems, stressful life experiences, frequency and intensity of failure experiences, fear of failure, and the expectations of others, in combination with high perfectionistic standards (either imposed by the self or perceived to be imposed by others) play a role in the development of

maladjustment. Empirical research indicates that coping functions as a moderator in the perfectionism-psychological maladjustment relationship and supports that perfectionists are a "high risk" group. Thus, this study suggests that perfectionists are also a high risk group for somatic problems, and provides a theoretical rationale for why coping styles may moderate the perfectionism-health relationship.

V. The Interactionist Model: Perfectionism, Coping Styles, Health Behaviours, and Health Status

The model presented in this study is interactionist in nature. According to Krahe (1992), variables within the person interact with the environment or situation to produce behaviour. Past experiences, learning experiences, and personality characteristics influence the individual's perceptions and behaviours and create the subjective meaning of a situation. Perfectionism, a personality characteristic, has been shown to be associated with irrational beliefs, cognitive distortions, and rigid goals, which together, influence the interpretation and perception of the environment and stressors. Therefore, characteristics of perfectionism are believed to influence the perfectionist's ability to deal with hassles, stress, and self or other imposed perfectionistic expectations. In fact, empirical evidence supports the notion that perfectionists have difficulty in dealing with stress and present with maladaptive coping styles (Flett, Russo, & Hewitt, 1994). In addition, it has been proposed that perfectionistic motivations, irrational beliefs, and cognitive distortions may affect the perfectionist's involvement with health behaviours. Furthermore, health status has been shown to be influenced by both coping styles and health behaviours (Goldsmith Cwickel et al., 1988; Ferguson & Drotar, 1994). Thus, the model presented in this study is interactionist and proposes that the personality feature of

perfectionism interacts with the environment or stressors to result in health outcomes. Specifically, in response to the environment and stressors (e.g., fulfilling self or other imposed standards, fear of failure, fear of displeasing others, achievement related stressors) perfectionistic features interact with coping styles to influence health status and health behaviours. The following presents a detailed outline of the hypotheses of this study: specifically, the expected relationships between perfectionism and health status, perfectionism and health care behaviours, and the moderating role of coping styles.

Perfectionism and health status are expected to be directly related because research has shown that self or other prescribed unrealistic goals, irrational beliefs, and cognitive distortions expressed by perfectionists, expose perfectionists to a prolonged state of stress and physiological arousal (Hewitt & Flett, 1993). In turn, prolonged stress and physiological arousal have been shown to negatively influence immune system functioning (Cohen & Rodriguez, 1995). Therefore, perfectionism is expected to directly predict health status.

The perfectionist's high self or other imposed standards, irrational beliefs, and cognitive distortions such as superstitious and categorical thinking (e.g., "I must fulfill all goals with the highest standards", "failure in attaining any goal is a reflection of my self-worth", and, " anytime things do not go my way it indicates I am a failure (Burns, 1980))" are proposed to influence involvement in health behaviours. Characteristics expressed by perfectionists, such as time and energy devoted to perfectionistic strivings, are believed to influence involvement in health behaviours (e.g., lack of time for exercise, sleep, healthy nutrition). In addition, it is proposed that perfectionists avoid health care utilization and preventive health behaviours to avoid possible indications of imperfection and

experiences that can be interpreted as failure (e.g., avoid medical check-ups which may detect a somatic illness, or dental check-ups which may detect oral imperfections). Thus, it is expected that perfectionism will be directly and inversely related to preventive health behaviours.

Empirical evidence supports that the dimensions of perfectionism are related to adaptive and maladaptive coping styles (e.g., Flett, Russo, & Hewitt, 1994). Specifically, self-oriented perfectionism and other-oriented perfectionism are linked with positive and negative coping features, and socially prescribed perfectionism is associated solely with negative coping features. Furthermore, empirical evidence supports the notion that maladaptive coping styles (specifically, avoidance coping) are predictive of poor health status and poor preventive health behaviours (Blake & Vandiver, 1988; Ferguson & Drotar, 1994; Goldsmith Cwickel et al., 1988). This model proposes that coping moderates the relationship between perfectionism and health status and preventive health behaviours. Thus, after statistically controlling for perfectionism and coping styles main effects, significant interactions are expected between the dimensions of perfectionism and the three coping styles. The following will specify the interactions expected between perfectionism and coping styles in predicting health status and preventive health care behaviours.

Self-oriented perfectionism, related to an intrinsic motivation, has been related to both adaptive and maladaptive coping features. In this study, it is expected to significantly interact with problem solving, social support, and avoidance coping. For high levels of self-oriented perfectionism, low levels of problem solving are expected to predict poorer health status and health behaviours. However, for high levels of problem

solving, health status and health behaviours are not expected to differ across self oriented perfectionism. Similarly, for high avoidance and high self oriented perfectionism, poorer health status is expected. For low levels of avoidance coping, health status is not expected to differ across self oriented perfectionism. Finally, for high social support and high self-oriented perfectionism, better health status and health behaviours are expected. With low social support, health status and health behaviours are not expected to differ across self-oriented perfectionism.

The relation between other-oriented perfectionism and coping styles is not well understood as it has been inconsistently associated with coping styles (Flett, Russo, & Hewitt, 1994). Thus, it is difficult to make predictions regarding interactions with this dimension. However, due to the interpersonal nature of this dimension, involving other-directed behaviour such as other-directed blame, other-oriented evaluations, lack of trust, and feelings of hostility towards others, it is expected to interact with coping styles in the following way. For high levels of problem solving, health status and health care behaviours are not expected to differ across other oriented perfectionism. However, for low levels of problem solving, poorer health status and health behaviours are expected for higher levels of other oriented perfectionism. For both low avoidance and low social support, health status and health behaviours are not expected to change as a function of increasing levels of other oriented perfectionism. However, for high avoidance and high social support, poorer health status and health behaviours are expected for increasing levels of other oriented perfectionism.

Finally, the nature of socially prescribed perfectionism involves a need to fulfill other-prescribed expectations, fear of disappointing others, and a need for social

approval. Thus, this dimension is expected to interact with coping styles in the following way. For high problem solving and high social support, health status and health behaviours are not expected to differ as a function of socially prescribed perfectionism. However, for low problem solving and low social support, poorer health status and health behaviours are expected with increasing levels of socially prescribed perfectionism. Finally, for low avoidance, health status and health behaviours are not expected to change across different levels of socially prescribed perfectionism. However, for high avoidance, poorer health status and health behaviours are expected as a function of increasing levels of socially prescribed perfectionism.

In addition, some sex differences were expected. While few sex differences have been found in the literature relating to perfectionism, they have been found in relation to health and coping. For instance, women have been found to report more somatic symptoms or chronic disabilities (e.g., Ferguson and Drotar, 1994; Goldsmith Cwickel et al., 1988), use of more social support coping and less problem solving coping than men report (e.g., Ferguson and Drotar, 1994). Thus, similar relationships are expected.

In summary, the general hypotheses of the present study include: 1. It is expected that women will report more health symptoms and more health care utilization than men will, as has been found in the literature. 2. As some literature has found that women report more social support coping and less problem solving coping than men, this is expected to be replicated. 3. Empirical research has positively linked problem solving coping and support seeking with better health status and health behaviours, and avoidance coping with poor health status and health care behaviours. Thus, these results are expected to be replicated. 4. Perfectionism will significantly account for variability in

health status and health behaviours. 5. Coping styles will significantly account for variability in health status and health behaviours. 6. Coping styles will act as a moderator variable, and significantly interact with the dimensions of perfectionism to predict health status and health behaviours in the manner presented above.

Method

Participants and Procedures

The data used in this study was derived from a larger study, the Niagara Young Adult Health Study (NYAHS). For the NYAHS study, a random-digit dialing process was used to locate two random samples of individuals between the ages of 24 and 30 in the Niagara-Halton region. The first sample was part of longitudinal study that was being re-contacted to participate in phase two of the study. Of the original 843 participants, 713 were located from which 62 withdrew, 3 were deceased, 104 never returned their questionnaires, and 7 could not be reached. Therefore, a total of 537 participants were obtained for phase two of that study.

The second sample was also obtained through random-digit dialing procedures. A total of 315 participants were contacted, from which12 participants withdrew and 27 participants did not return their questionnaires. This sample consisted of 276 participants. The entire sample used in this study consisted of 813 participants, of whom 337 were men and 476 were women. Participants ranged in age from 19 to 39 years, with a mean age of 29 years.

All individuals who participated in the NYAHS study completed a battery of tests which were mailed along with a self-addressed stamped envelope. Upon receiving the

questionnaires from participants, participants were mailed a cheque for $20.00. At the time of the initial contact, individuals were informed that all questionnaires would be kept confidential (e.g., names would not be attached to the questionnaire), that questionnaires would be destroyed upon completion of the study, and that they could withdraw from the study at any point in time.

Measures

The Multidimensional Perfectionism Scale (MPS) (Hewitt and Flett, 1991a). Appendix A presents this 45 item self-report measure of self-oriented, other-oriented, and socially prescribed perfectionism. For each dimension participants rate 15 statements on a seven point scale reflecting self-oriented perfectionism (e.g., one of my goals is to be perfect in everything I do), other-oriented perfectionism (e.g., I have high expectations for the people who are important to me), and socially prescribed perfectionism (e.g., people expect nothing less than perfection from me). The majority of items are worded in the positive direction so that higher scores reflect higher perfectionistic tendencies and lower scores reflect lower perfectionistic tendencies. However, some MPS items are reverse keyed and were recoded for scoring. Scores were obtained for each dimensions of perfectionism by summing the 15 items and computing means. Hewitt and Flett (1991a) presented extensive data to support the reliability and validity of the MPS in both clinical and non-clinical samples.

Health status. To examine symptoms, a measure was adapted from Macmillan (1957). This measure, shown in Appendix B, is a list of 21 items pertaining to sleep problems, shortness of breath, pain, ailments, and the extent to which symptoms affect working. This measure asks participants to indicate, on a five point scale, the experience

of these symptoms over the past year. All items are worded in the positive direction so that higher scores reflect greater symptomology. Scores were obtained by summing the items and calculating means. Greater scores reflect greater experience of health symptoms.

Health service utilization was measured by three items which ask participants to indicate the number of visits made to a physician over two years, number of days sick in bed over two years, and inquires if they are currently under a physician's care. The first two items are worded so that higher scores reflect greater health care utilization. The last item requires a *yes* or *no* answer. To obtain one overall score for this variable, scores were converted to standardized scores and a mean was calculated. Greater scores reflect greater health care utilization and lower scores reflect less health care utilization. Appendix B displays the health symptoms and health care utilization measures.

Health behaviours. A 19 item questionnaire, shown in Appendix C, measures health behaviours in which participants engaged in and reflect preventive behaviours. Participants indicate their agreement with statements on a five point scale that consists of four categories of distinct health behaviours: 1) Diet and exercise behaviours (e.g., 6 items that pertain to maintaining desired weight, limiting intake of foods with fats, strenuous exercise, vitamin use, eating a good breakfast, and eating junk food). 2) Medical compliance behaviours (e.g., 6 items that inquire about regular dental check ups, blood pressure check ups, taking medication as prescribed, breast examinations, PAP smear tests, and visits to physician when ill). 3) Substance use behaviours (e.g., 3 items reflecting the use of alcohol, illicit drugs, and cigarette smoking). 4) Safe driving behaviors (e.g., 4 items reflecting whether one has driven when angry, when too tired,

when very angry, after a few drinks, or without a seatbelt). Most items are worded so that higher scores reflect greater involvement in preventive health behaviours. Certain items were recoded so that higher scores reflect greater involvement in such behaviours. For each of the four health behaviours, mean scores were calculated so that higher scores reflect greater involvement in that health behaviour.

Coping Strategy Indicator. This measure, presented in Appendix D, is a factor analytically derived measure of coping which includes subscales for problem solving (e.g., tried to solve the problem), seeking support (e.g., sought reassurance from people who know you best), and avoidance behaviours (e.g., found something to do to distract you) (Amirkhan, 1990). For each subscale, participants rate 5 statements on a three point scale so that greater scores reflect greater use of that coping strategy. Overall scores were obtained by summing all items for each subscale and obtaining a mean score. This test has been shown to have good internal consistency. Cronbach's alpha showed .93 for seeking social support, .89 for problem solving, and .84 for avoidance, good overall test-retest reliability, and good construct validity (Amirkhan, 1990).

Testing the Model

Hierarchical regression analyses were used to test the model in which measures of health status and health care behaviours were criterion variables[1]. Separate regression

[1] Missing data were treated with listwise deletion so that cases with missing values were deleted. As such, n's differ in the various analyses in this study. According to Cohen and Cohen (1983) alternative strategies for missing data include dropping variables or pairwise deletion, which would both result in a loss of information. They suggest that listwise deletion should be used when missing data occurs for a relatively small proportion of participants and/or when the sample size is large, as is found in this study. Although this results in some loss of degrees of freedom and some loss of statistical power, results obtained when some subjects are dropped in some analysis, compared to when all subjects are kept, should not greatly differ.

analyses were run for each criterion variable for testing coping styles as a moderator in the relationship between perfectionism and health status and health behaviours. When testing the moderator model, hierarchical analyses were carried out in the following way. The dimensions of perfectionism were entered on the first step to determine their direct contribution to the variability of each criterion variable. On the second step, coping styles were entered, as they are the moderator variables. On step three, interaction terms between the dimensions of perfectionism and coping styles were entered (Barron & Kenny, 1986). In this way, the unique and significant contribution of the interactions to each health status and health care behaviour variable can be determined.

Results

Sample

Most participants (97.2%) were Canadian citizens, 1.9% were landed immigrants, visa, or other immigration status individuals, and 0.9% did not provide citizenship status. The sample used in this study was relatively heterogeneous in marital status, employment status, and income level. Most (71.7%) participants were married, engaged, or in a serious relationship, 27.3% were separated, divorced, or unattached, and 1.1% did not provide marital status information. About half (51.3%) of participants indicated they had no children, 42.1% reported having between one and three children, 2.8% indicated having 4 or more children, and 3.8% of participants did not provide this information. A total of 48.6% participants were employed full time, 17% were employed part time, 9.3% were unemployed, 7.6% were homemakers, 9.3% were full time students, 1.6% were part time students, and 6.8% of participants did not provide employment status. Finally, in

terms of yearly income, 22.3% reported less than $5,000, 33.5% reported ranging between $5,000 and $19,999, 27.4% reported ranging from $20,000 to $39,999, 11% reported greater than $40,000, and 5.8% of participants did not provide information on income.

Descriptive statistics

Table 1 depicts the means and standard deviations for all variables used in this study for the entire sample as well as for men and women separately. In addition, it shows results for t-tests which were performed for sex-related differences.

Participants expressed moderate levels of self oriented, other oriented, and socially prescribed perfectionism. This sample's perfectionism scores and variances appeared similar to scores reported by students in Hewitt and Flett (1991a). However, it appears that psychiatric patients and individuals with anxiety disorders (Hewitt & Flett 1991a) reported higher socially prescribed scores than participants in this study.

An interesting finding was that men reported significantly greater self oriented and other oriented perfectionism than women. The latter finding has been replicated in the literature by Hewitt and Flett (1991a) in a sample of university students and a sample of psychiatric patients.

Mean scores indicated that participants reported moderate use of all three coping styles, problem solving, support seeking, and avoidance. As expected, men reported significantly less use of support seeking than women[2]. This is similar to Ferguson and

[2] This result must be interpreted with caution; the Levene's Test indicated that variances for men and women were significantly different from each other. Although the t-test is robust with respect to the violation of homogeneity of variance when two samples are equal (Glass & Hopkins, 1984), this sample does not have an equal number of men and women. Thus, this result must be cautiously acknowledged, recognizing that there is an increased possibility of making a Type I error (Glass & Hopkins, 1984). In addition, Glass & Hopkins (1984) note that if under these conditions the smaller sample has the larger

Table 1. Means and standard deviations for sample.

Variable	Total Sample			Men			Women			Sex Differences	
	M	SD	n	M	SD	n	M	SD	n	t	p
Self Oriented Perfectionsim	4.54	1.07	793	4.7	1	325	4.5	1.1	468	2.87	0.00
Socially Prescribed Perfectionism	3.34	0.88	793	3.4	0.8	326	3.3	0.9	467	1.25	0.21
Other Oriented Perfectionism	3.61	0.80	794	3.8	0.8	328	3.5	0.8	466	4.43	0.00
Problem Solving Coping	2.39	0.37	797	2.4	0.4	328	2.4	0.4	469	1.12	0.26
Support Seeking Coping	2.20	0.49	799	2	0.5	329	2.3	0.5	470	-9.63	0.00
Avoidance Coping	1.68	0.39	800	1.7	0.4	328	1.7	0.4	472	-1.79	0.07
Health Symptoms	2.15	0.49	806	2	0.5	334	2.2	0.5	472	-6.84	0.00
Health Care Utilization	0	0.79	810	-0.2	0.7	335	0.1	0.8	475	-5.78	0.00
Diet and Exercise	2.85	0.62	805	2.9	0.6	331	2.9	0.6	474	0.38	0.71
Substance Use	3.74	0.88	808	3.5	0.9	334	3.9	0.8	474	-5.78	0.00
Safe Driving	3.99	0.74	804	3.8	0.8	333	4.1	0.7	471	-6.98	0.00
Medical Compliance	2.94	0.84	804	2.7	0.9	330	3.1	0.8	474	-7.32	0.00

variance and the larger sample has the smaller variance, the probability of making a Type I error increases. As in this study the smaller sample has the larger variance there is an increased possibility of making a Type I error.

Drotar (1984) who also found that women reported using more social support coping than men.

As individuals in this sample were relatively young, less symptomology would intuitively be expected from this age group. Consequently, participants reported relatively low levels of health symptoms. As expected, results showed that men reported significantly fewer symptoms than women. This supports other literature that found similar results (e.g., Ferguson & Drotar, 1984; Goldsmith Cwickel et al., 1988). In addition, men reported significantly less health care utilization than women[3]. This finding is also supported in the literature (e.g., Newcomb & Bentler, 1987; Ferguson & Drotar, 1994).

Means indicated that participants reported moderate levels of involvement in behaviours related to maintaining a proper diet and exercise. Scores reflected that, in general, participants engaged in diet and exercise behaviors on occasion. For the health behaviour substance use, participants reported using substances relatively infrequently, with men reporting significantly less substance use than women[4]. Participants' scores also indicated a fairly high level of involvement in safe driving behaviours, with women reporting significantly more involvement in this health behaviour than men[5]. Finally, for

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[3] This result must be cautiously interpreted as Levene's Test for equality of variances indicated that variances for men and women were significantly different from each other, $F = 24.17$, $p < .001$. Specifically, scores for men were less variable than scores for women.

[4] This must be cautiously acknowledged, as Levene's test for equality of variances indicated that variances for men and women were significantly different from each other, $F = 6.952$, $p < .009$. Scores for men were more variable than scores for women.

[5] This must be cautiously accepted as Levene's test for equality of variances shows that variances for men and women were significantly different from each other, $F = 12.394$, $p < .0001$, with scores for men more variable than scores for women.

the health behaviour medical compliance, means indicate that individuals reported some involvement in medical compliance behaviours, with men reporting significantly less medical compliance than women[6].

Intercorrelations Among the Variables

The intercorrelations among the variables used in this study are presented in Tables 2 and 3. Table 2 presents intercorrelations for the entire sample and Table 3 shows intercorrelations separately for men and women.

Perfectionism, coping styles, and health.

Intercorrelations indicated that the three dimensions of perfectionism were significantly related to one another. This suggests that, although each dimension of perfectionism represents a unique motivational component, they are not independent. Therefore, individuals may express a combination of perfectionistic motivations, behaviours, and emotions. From Table 3, it is evident that this pattern of relationships holds for women and men.

Relationships among the coping styles were such that that individuals who reported greater use of problem solving were likely to report less use of avoidance coping and greater support seeking. This pattern of relationships also existed when women and men were examined separately.

The relationships between the health status variables were similar when the sample was examined as a whole, and when men and women were considered separately. Specifically, results showed that individuals who reported greater health symptoms also

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[6] This must be cautiously interpreted as Levene's test for equality of variances indicated that variances for men and women were significantly different from each other, $F = 4.430$, $p < .05$, for medical compliance. Scores for men were more variable than scores for women. Thus, for a number of t-tests, the assumption of

Table 2. Intercorrelations among all variables for entire sample

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Self Oriented Perfectionism	--										
2. Socially prescribed Perfectionism	0.40 (.00)	--									
3. Other Oriented Perfectionism	0.50 (.00)	0.36 (.00)	--								
4. Problem Solving Coping	0.22 (.00)	-0.03 (.43)	0.11 (.00)	--							
5. Support Seeking Coping	-0.00 (.99)	-0.07 (.04)	0.00 (.90)	0.16 (.00)	--						
6. Avoidance Coping	-0.01 (.78)	0.29 (.00)	-0.03 (.32)	-0.14 (.00)	-0.00 (.88)	--					
7. Health Symptoms	0.02 (.58)	0.28 (.00)	-0.03 (.38)	-0.04 (.28)	0.11 (.00)	0.36 (.00)	--				
8. Health Care Utilization	-0.12 (.00)	0.07 (.06)	-0.07 (.06)	-0.10 (.00)	0.08 (.02)	0.15 (.00)	0.50 (.00)	--			
9. Diet and Exercise	0.07 (.05)	-0.10 (.00)	0.06 (0.09)	0.18 (.00)	0.04 (.27)	-0.18 (.00)	-0.16 (.00)	-0.05 (.17)	--		
10. Substance Use	0.10 (.00)	0.01 (.69)	0.05 (.19)	0.01 (.83)	0.05 (.19)	-0.09 (.01)	-0.08 (.02)	0.03 (.35)	0.14 (.00)	--	
11. Safe Driving	-0.04 (.20)	-0.13 (.00)	-0.07 (.04)	0.11 (.00)	0.05 (.12)	-0.17 (.00)	-0.13 (.00)	0.05 (.14)	0.12 (.00)	0.32 (.00)	--
12. Medical Compliance	-0.05 (.18)	-0.081 (.02)	-0.07 (.06)	0.04 (.28)	0.15 (.00)	-0.07 (.06)	0.17 (.00)	0.33 (.00)	0.15 (.00)	0.15 (.00)	0.15 (.00)

Note. n's differ as a function of the total number of participants who completed those items. Values in parenthesis are two tailed p values.

homogeneity was violated so that these results should be interpreted with caution. Although the inequalities may be sample specific, given the large sample size, it is likely to be representative of the population.

Table 3. Intercorrelations among variables with men above and women below.

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Self Oriented Perfectionism	--	0.29 (.00)	0.47 (.00)	0.29 (.00)	0.02 (.73)	-0.08 (.14)	-0.07 (.24)	-0.13 (.02)	0.09 (.09)	0.10 (.08)	-0.04 (.49)	-0.02 (.764)
2. Socially Prescribed Perfectionism	0.46 (.00)	--	0.32 (.00)	-0.07 (.20)	-0.04 (.43)	0.30 (.00)	0.36 (.00)	0.07 (.21)	-0.15 (.01)	-0.05 (.34)	-0.18 (.00)	-0.05 (.37)
3. Other Oriented Perfectionism	0.50 (.00)	0.38 (.00)	--	0.13 (.02)	0.08 (.13)	-0.02 (.70)	0.00 (.94)	-0.11 (.05)	0.05 (.37)	0.06 (.26)	-0.10 (.06)	-0.07 (.18)
4. Problem Solving Coping	0.16 (.00)	-0.00 (.97)	0.08 (.09)	--	0.21 (.00)	-0.14 (.01)	-0.08 (.13)	-0.21 (.00)	0.18 (.00)	-0.0 (.79)	0.09 (.09)	-0.00 (.99)
5. Support Seeking Coping	0.05 (.29)	-0.07 (.12)	0.05 (.32)	0.16 (.00)	--	-0.02 (.78)	0.11 (.04)	-0.02 (.67)	0.02 (.713)	-0.08 (.15)	-0.06 (.28)	0.01 (.84)
6. Avoidance Coping	0.05 (.31)	0.28 (.00)	-0.03 (.53)	-0.13 (.00)	-0.04 (.43)	--	0.33 (.00)	0.16 (.00)	-0.10 (.06)	-0.15 (.01)	-0.19 (.00)	-0.09 (.11)
7. Health Symptoms	0.12 (.01)	0.26 (.00)	0.01 (.88)	0.01 (.82)	-0.02 (.60)	0.37 (.00)	--	0.48 (.00)	-0.22 (.00)	-0.21 (.00)	-0.19 (.00)	0.12 (.02)
8. Health Care Utilization	-0.09 (.06)	0.08 (.08)	0.00 (.95)	-0.03 (.46)	0.04 (.34)	0.13 (.00)	0.47 (.00)	--	-0.10 (.07)	-0.01 (.83)	0.06 (.28)	0.35 (.00)
9. Diet and Exercise	0.05 (.27)	-0.07 (.11)	0.06 (.16)	0.18 (.00)	0.06 (.16)	-0.23 (.00)	-0.13 (.00)	-0.02 (.72)	--	0.19 (.00)	0.14 (.01)	0.09 (.08)
10. Substance Use	0.15 (.00)	0.08 (.09)	0.09 (.05)	0.04 (.37)	0.03 (.56)	-0.08 (.09)	0.08 (.08)	-0.00 (.94)	0.10 (.03)	--	0.25 (.00)	0.17 (.00)
11. Safe Driving	-0.01 (.84)	-0.08 (.07)	0.02 (.73)	0.15 (.00)	0.00 (.91)	-0.19 (.00)	-0.21 (.00)	-0.03 (.47)	0.12 (.01)	0.31 (.00)	--	0.17 (.00)
12. Medical Compliance	-0.03 (.51)	-0.09 (.06)	-0.00 (.98)	0.09 (.06)	0.12 (.01)	-0.08 (.07)	0.12 (.01)	0.26 (.00)	0.22 (.00)	0.05 (.33)	0.02 (.63)	--

Note. n's differ as a function of the total number of participants who completed that item. Values in parenthesis are two tailed p values

reported greater use of health care utilization.

Some interesting relationships were seen among the health behaviour variables. Specifically, individuals who reported greater involvement in diet and exercise behaviours also tended to report increased involvement in safe driving practices, medical compliance, and substance use. These results were similar when scores were examined separately for men and women. In addition, results showed that greater involvement in safe driving behaviours was linked with greater medical compliance. This held for the overall and men's sample only. Finally, an interesting finding was that greater involvement in positive health behaviours, specifically safe driving and medical compliance, were linked with greater involvement in a negative health behaviour, that of substance use. These results were similar for men and women.

Perfectionism and health status.

The pattern of relationships between perfectionism and health status variables appeared sporadic. For the whole sample and for men, increasing levels of socially prescribed perfectionism were associated with increased reports of health symptoms. For women, both self oriented and socially prescribed perfectionism were linked with increased health symptom reports. This is similar to findings reported by Martin et al. (1996) who also found that socially prescribed and self oriented perfectionism were positively associated with health symptoms.

Finally, results indicated that self oriented perfectionism was predictive of decreased health care utilization. However, this relationship did not hold when men and women's scores were analyzed separately. Although it was expected that both self

oriented and other oriented perfectionism would be negatively related to health care utilization, only the former variable showed this relationship.

Perfectionism and health behaviours.

Results showed that for the general sample, increased scores on socially prescribed perfectionism were linked with decreased involvement in diet and exercise. However, when examining men and women separately, this relationship was significant only for men. Because of the nature of self oriented and socially prescribed perfectionism, this study expected that both would be negatively associated with diet and exercise behaviours. However only the latter perfectionism variable showed this association.

Intercorrelations for the overall sample indicated that increased levels of self oriented perfectionism were associated with increased substance use. However, when examined separately for men and women, this relationship was only significant for women. This study expected to find that increased use of substances would be reported by individuals expressing self oriented and other oriented perfectionism. However, only self oriented perfectionism was a significant predictor of substance use, and only in the overall and women's sample.

Results indicated that in the overall sample, increased socially prescribed perfectionism was linked with decreased safe driving behaviours. However, when examining men and women separately, this relationship was only significant in the men's sample. Although this study expected to find a negative relationship between safe driving behaviours and socially prescribed and self oriented perfectionism, this was found only with the former variable, and only in the men's sample.

Finally, although this study expected to find self oriented and socially prescribed perfectionism negatively related to medical compliance, this was not found. In fact, medical compliance was not significantly associated with any of the dimensions of perfectionism.

Perfectionism and coping styles.

Self oriented and other oriented perfectionism were both significantly associated with problem solving in the entire sample. When examining men and women separately, this relationship held for men, while for women only self oriented perfectionism was significantly linked with problem solving. Other studies have also linked self oriented and socially prescribed perfectionism with problem solving (e.g., Flett, Russo, & Hewitt, 1994; Flett, Hewitt, Blankstein, & Koledin, 1991).

For the overall sample, greater socially prescribed perfectionism was related to decreased support seeking, although the significance level was marginal. This did not hold when men and women were examined separately. As expected, greater socially prescribed perfectionism was significantly linked with increased use of avoidance coping in the entire sample. This relationship was also significant when scores were examined for men and women separately.

Coping styles, health symptoms, and health care utilization.

When the entire sample was combined, results showed that increased support seeking and increased avoidance coping were linked with increased health symptom reports. When men and women's scores were examined separately, the relationship between avoidance coping and health symptoms was significant. The relationship between social support and symptoms was marginally significant, only for men. This link

between avoidance coping and health symptoms has been replicated in the literature (e.g., Ferguson & Drotar, 1994; Blake & Vandiver, 1988; and Goldsmith Cwickel et al., 1988). Although it was expected that support seeking and health would be negatively related, (as found in Goldsmith Cwickel et al., 1988), this was not found. However, literature indicates that these variables are inconsistently related (e.g., Blake & Vandiver, 1988).

In the entire sample, increased problem solving scores were linked with decreased health care utilization. In addition, increased use of avoidance coping was found to be associated with greater health care utilization. Increased use of support seeking was also linked with increased health care utilization, although the significance level was marginal. When examined separately, the former two relationships held for the men's sample, while in the women's sample only the relationship between avoidance coping and health care utilization was significant.

Coping and health behaviours.

When examining the entire sample, greater use of problem solving was associated with greater involvement in diet and exercise. In addition, it was found that increased use of avoidance coping was linked with decreased involvement in diet and exercise behaviours. These relationships were significant when women's scores were examined; however, only problem solving was significantly associated with diet and exercise for men. In addition, avoidance coping was found to significantly predict less substance use in the entire sample. However, when examined separately, this relationship only held in the men's sample.

Results showed that greater use of problem solving was predictive of greater safe driving practices. Conversely, increased use of avoidance coping was linked with

decreased safe driving behaviours. When men and women's scores were examined separately, the above relationships were significant for women; however, for men, only the latter relationship was significant.

Finally, support seeking was found to significantly predict increased medical compliance in the entire sample. However, when men and women's scores were analyzed separately, this significant relationship only existed for women.

Model Building Phase

Prior to conducting hierarchical multiple regression analyses to test the model proposed in this study, a model building phase was conducted. This is shown in Table 4. According to the model, it was expected that the predictors (perfectionism), the moderators (coping styles), and their interaction would significantly predict variance in health status and health behaviours. However, as literature indicated that sex differences exist in health and coping, it was possible that sex interacted with the variables in this model to significantly add to the variability predicted in the criterion variables. Furthermore, significant three way interactions between perfectionism, coping, and sex were additional possibilities. Finally, as exploring the role of perfectionism in health was an integral component of the study, it was important to examine the possibility that perfectionism functioned as a non-linear predictor. Thus, to decrease the chance of making a Type II error (Cohen & Cohen, 1983), the model building phase was used to test two way and three way interactions and non-linearity. A statistical significance criterion of .05 was used so that only those variables meeting this criterion would be included in the final model.

Table 4. Model building tests of non-linearity and interactions for variables in model.

Criterion Variable	R^2change	df	F	p
Health Symptoms				
1. Sex				
Perfectionism				
Coping Styles	0.23	7, 762	31.86	0.00
2. Perfectionism by Coping				
Perfectionism by Sex				
Coping by Sex	0.02	15, 747	1.33	0.18
3. Perfectionism Squared	0.01	3, 744	1.73	0.16
4. Perfectionism by Sex by Coping	0.01	9, 735	0.71	0.70
Overall Model:	R^2 = 0.26	34, 735	7.52	0.00
Health Care Utilization				
1. Sex				
Perfectionism				
Coping Styles	0.09	7, 762	10.22	0.00
2. Perfectionism by Coping				
Perfectionism by Sex				
Coping by Sex	0.01	15, 749	0.80	0.68
3. Perfectionism Squared	0.00	3, 746	0.33	0.80
4. Perfectionism by Sex by Coping	0.01	9, 737	0.84	0.58
Overall Model:	R^2 = 0.11	34, 737	2.69	0.00
Diet and Exercise				
1. Sex				
Perfectionism				
Coping Styles	0.06	7, 759	7.55	0.00
2. Perfectionism by Coping				
Perfectionism by Sex				
Coping by Sex	0.01	15, 744	0.74	0.74
3. Perfectionism Squared	0.00	3, 741	0.50	0.69
4. Perfectionism by Sex by Coping	0.01	9, 732	0.99	0.44
Overall Model:	R^2 = 0.09	34, 732	2.18	0.00

Table 4. continued

Criterion Variable	R^2change	df	F	p
Substance Use				
1. Sex				
Perfectionism				
Coping Styles	0.07	7, 762	7.64	0.00
2. Perfectionism by Coping				
Perfectionism by Sex				
Coping by Sex	0.03	15, 747	1.87	0.02
3. Perfectionism Squared	0.00	3, 744	0.43	0.73
4. Perfectionism by Sex by Coping	0.01	9, 735	0.72	0.07
Overall Model:	$R^2 = 0.11$	34, 735	2.643	0.00
Safe Driving				
1. Sex				
Perfectionism				
Coping Styles	0.11	7, 758	14.07	0.00
2. Perfectionism by Coping				
Perfectionism by Sex				
Coping by Sex	0.02	15, 743	1.36	0.16
3. Perfectionism Squared	0.00	3, 740	1.25	0.29
4. Perfectionism by Sex by Coping	0.01	9, 731	0.83	0.59
Overall Model:	$R^2 = 0.15$	34, 731	3.84	0.00
Medical Compliance				
1. Sex				
Perfectionism				
Coping Styles	0.08	7, 758	9.25	0.00
2. Perfectionism by Coping				
Perfectionism by Sex				
Coping by Sex	0.01	15, 743	0.71	0.77
3. Perfectionism Squared	0.00	3, 740	0.68	0.57
4. Perfectionism by Sex by Coping	0.01	9, 731	0.62	0.78
Overall Model:	$R^2 = 0.10$	34, 731	2.42	0.00

Results from the model building analyses indicated the following. As expected, main effects entered as a set were significant predictors. Of the two way, three way, and non-linear terms, only one appeared to be a significant predictor. Specifically, for the criterion substance use, the overall R^2 for the set of variables entered on step two was significant. However, within the set, none of the individual interactions were significant. As no sets of predictors were significant in step two and beyond, the table does not include values for individual predictors.

In conclusion, the model originally proposed in this study was kept: main effects of perfectionism and coping, and interactions between the two. Although interactions were not significant, perfectionism by coping interactions were determined a priori to be part of the model; thus they were kept in the final model. By maintaining a significance criterion of .05 in the model building phase, the number of variables that could be added to the model was reduced, the possibility of making a Type I error was reduced, and the possibility of finding spurious results was reduced.

Testing the Model: Coping styles as a moderator in the relationship between perfectionism and health status and health behaviours

To test the model proposed in this study, hierarchical multiple regression analyses were conducted separately for each dependent variable. Analyses were organized in the following manner. Sex was entered on the first step because of its temporal precedence (Cohen & Cohen, 1983). In addition, literature has found sex to play a significant role in predicting health, as did hierarchical regression analyses carried out in the model building phase of this study. On step two, the predictors, the perfectionism dimensions, were entered as a set (Baron & Kenny, 1986; Cohen & Cohen, 1983). On step three, the

moderator variables, coping styles, were entered as a set (Baron & Kenny, 1986; Cohen & Cohen, 1983). Finally, after main effects for perfectionism and coping styles were entered, interaction terms between the predictor and moderator variables were entered on step four (Baron & Kenny, 1986; Cohen & Cohen, 1983). Results of the hierarchical regression analyses are shown in Table 5. The following reviews those results.

For health symptoms, the overall model was significant. On step one, the main effect for sex was significant, indicating that women reported more symptoms than men. The set of perfectionism variables significantly predicted the criterion; both socially prescribed and other oriented perfectionism were significant predictors. Socially prescribed perfectionism predicted increased symptom reports while other oriented perfectionism predicted decreased symptom reports. Although main effects for coping styles were significant as a set, only avoidance coping was significant, predicting increased symptoms. Interactions were not significant. Residuals analyses indicated a normal distribution.

For the criterion variable of health care utilization, the overall model was significant. Sex was significant and indicated that women report greater health care utilization than men. As a set, perfectionism significantly accounted for the variance in the criterion variable, with self oriented and socially prescribed perfectionism significant predictors. Greater self oriented perfectionism predicted decreased health care utilization, and greater socially prescribed perfectionism predicted increased health care utilization. Main effects for coping styles were significant. Only avoidance coping was significant, predicting increased health care utilization. Finally, interaction terms were not

Table 5. Results of hierarchical regression analysis in which sex, perfectionism, and coping styles, are used to predict health symptoms and health beahviours.

Criterion Variable:	sr^2	ß	R^2 change	df	F	p
Health Symptoms						
1. Sex	0.06	0.24	0.06	1, 768	48.96	.00
2. SOP	0.00	-0.04				
SPP	0.09	0.34***				
OOP	0.01	-0.09*	0.10	3, 765	29.02	.00
3. Problem Solving	0.00	0.02				
Support Seeking	0.00	0.05				
Avoidance	0.07	0.28***	0.07	3, 762	23.13	.00
4. SOP by Avoidance	0.00	-0.16				
SOP by Problem Solving	0.00	-0.17				
SOP by Support Seeking	0.00	-0.20				
SPP by Avoidance	0.00	0.05				
SPP by Problem Solving	0.00	0.22				
SPP by Support Seeking	0.00	-0.04				
OOP by Avoidance	0.00	-0.08				
OOP by Problem Solving	0.00	0.16				
OOP by Support Seeking	0.00	0.23	0.00	9, 753	0.34	0.96
Overall Model:		R^2 :	0.23	16, 753	14.02	.00
Health Care Utilization						
1. Sex	0.04	0.19***	0.04	1, 770	29.83	.00
2. SOP	0.02	-0.16***				
SPP	0.02	0.15***				
OOP	0.00	-0.01	0.03	3, 767	7.82	.00
3. Problem Solving	0.00	-0.07				
Support Seeking	0.00	0.05				
Avoidance	0.01	0.12**	0.02	3, 764	5.50	.00
4. SOP by Avoidance	0.00	-0.07				
SOP by Problem Solving	0.00	-0.08				
SOP by Support Seeking	0.00	-0.31				
SPP by Avoidance	0.00	-0.18				
SPP by Problem Solving	0.00	-0.38				
SPP by Support Seeking	0.00	0.08				
OOP by Avoidance	0.00	0.29				
OOP by Problem Solving	0.02	-0.14				
OOP by Support Seeking	0.00	0.36	0.01	9, 755	0.78	0.63
Overall Model:		R^2 :	0.09	16, 755	4.90	.00

Table 5. continued

Criterion Variable:	sr^2	ß	R^2 change	df	F	p
Diet and Exercise						
1. Sex	0.00	-0.18	0.00	1, 165	0.25	0.62
2. SOP	0.01	0.11*				
SPP	0.02	-0.16***				
OOP	0.00	0.06	0.03	3, 762	6.85	.00
3. Problem Solving	0.02	0.15***				
Support Seeking	0.00	0.01				
Avoidance	0.01	-0.13***	0.04	3, 759	10.43	.00
4. SOP by Avoidance	0.00	-0.16				
SOP by Problem Solving	0.00	-0.16				
SOP by Support Seeking	0.00	0.01				
SPP by Avoidance	0.00	-0.33				
SPP by Problem Solving	0.00	-0.41				
SPP by Support Seeking	0.00	-0.13				
OOP by Avoidance	0.00	0.25				
OOP by Problem Solving	0.00	0.19				
OOP by Support Seeking	0.00	0.12	0.01	9, 750	0.61	0.79
Overall Model:		R^2 :	0.07	16, 750	3.63	.00
Substance Use						
1. Sex	0.04	0.19***	0.04	1, 768	29.64	.00
2. SOP	0.01	0.12**				
SPP	0.00	-0.04				
OOP	0.00	0.03	0.02	3, 765	4.48	.00
3. Problem Solving	0.00	-0.03				
Support Seeking	0.00	-0.01				
Avoidance	0.01	-0.11**	0.01	3, 762	3.22	.02
4. SOP by Avoidance	0.00	0.36				
SOP by Problem Solving	0.00	0.10				
SOP by Support Seeking	0.00	0.36				
SPP by Avoidance	0.00	0.32				
SPP by Problem Solving	0.00	-0.56				
SPP by Support Seeking	0.00	0.14				
OOP by Avoidance	0.00	-0.47				
OOP by Problem Solving	0.00	0.23				
OOP by Support Seeking	0.00	0.41	0.02	9, 753	2.15	.02
Overall Model:		R^2 :	0.09	16, 753	4.60	.00

Table 5. continued

Criterion Variable:	sr^2	ß	R^2 change	df	F	p
Safe Driving						
1. Sex	0.06	0.25***	0.06	1, 764	50.87	.00
2. SOP	0.00	0.03				
SPP	0.01	-0.13***				
OOP	0.00	-0.00	0.02	3, 761	4.46	.00
3. Problem Solving	0.01	0.11**				
Support Seeking	0.00	-0.05				
Avoidance	0.02	-0.15***	0.04	3,758	10.37	.00
4. SOP by Avoidance	0.01	0.53				
SOP by Problem Solving	0.00	0.28				
SOP by Support Seeking	0.00	0.42				
SPP by Avoidance	0.00	0.30				
SPP by Problem Solving	0.00	-0.33				
SPP by Support Seeking	0.00	-0.21				
OOP by Avoidance	0.00	-0.15				
OOP by Problem Solving	0.00	-0.08				
OOP by Support Seeking	0.00	0.18	0.02	9, 749	1.64	.10
Overall Model:		R^2 :	0.13	16, 749	7.12	.00
Medical Compliance						
1. Sex	0.06	.25***	0.06	1, 764	52.85	.00
2. SOP	0.00	0.01				
SPP	0.00	-0.06				
OOP	0.00	-0.01	0.00	3, 761	1.03	.38
3. Problem Solving	0.00	-0.13				
Support Seeking	0.00	0.07				
Avoidance	0.00	-0.07	0.01	3, 758	2.81	.04
4. SOP by Avoidance	0.00	0.05				
SOP by Problem Solving	0.00	-0.15				
SOP by Support Seeking	0.00	0.40				
SPP by Avoidance	0.00	0.08				
SPP by Problem Solving	0.00	0.03				
SPP by Support Seeking	0.00	-0.00				
OOP by Avoidance	0.00	-0.15				
OOP by Problem Solving	0.00	-0.34				
OOP by Support Seeking	0.00	-0.16	0.01	9, 749	0.48	.88
Overall Model:		R^2 :	0.08	16, 749	4.29	.00

:. * $p < .05$. ** $p < .01$. *** $p < .001$.

significant. Residuals analyses indicated a non-linear trend, suggesting that some non-linearity is not accounted for by the model.

In predicting diet and exercise, the overall model was significant. On step one, sex was not significant. The set of perfectionism variables significantly predicted variance in the criterion; both self oriented and socially prescribed perfectionism were significant. Increased scores on the former predicted increased involvement in diet and exercise, while increased scores on the latter predicted decreased involvement. Coping styles were also significant predictors. Increased problem solving predicted increased involvement in diet and exercise and increased avoidance coping predicted decreased involvement in this health behaviour. Interactions were not significant. Residuals analyses indicated that the model was adequate in describing the data.

The overall model significantly predicted the variability in substance use. Sex was a significant predictor and indicated that women reported greater involvement in diet and exercise than men. The set of perfectionism variables significantly accounted for the variance in the criterion variable; however, within the set, only self oriented perfectionism was significant, predicting increased substance use. Main effects for coping styles were significant; however, within the set, only avoidance coping was significant, predicting increased involvement in substance use. Finally, although the set of interactions between coping styles and perfectionism were significant, within the set individual interaction terms were not significant. A standardized residuals scatterplot indicated a problem with the model.

For the criterion variable of safe driving, the overall model was significant. On step one, sex was a significant predictor. Specifically, women reported greater safe driving practices than men. The set of perfectionism variables was significant; however, within this set, only socially prescribed perfectionism was significant, with increased scores predicting decreased safe driving behaviours. Coping styles significantly contributed to the variance in the criterion variable. Both problem solving and avoidance were significant predictors within this set; increased scores on the former predicted increased safe driving and increased scores on the latter predicted decreased safe driving practices. Interaction terms were not significant. While a residuals histogram and a standardized residuals plot were normal, a standardized residual scatterplot revealed a problem with the model.

Finally, for medical compliance, the overall model was significant. Sex significantly accounted for the variability in the criterion; women reported greater medical compliance than men. The set of perfectionism variables were not significant predictors. Although as a set coping styles significantly contributed to the variability in the criterion, none of the individual coping styles were significant predictors. Finally, interactions were not significant. Residuals analyses indicated that the model adequately described the data.

To summarize, coping styles were not found to moderate the relationship between perfectionism and the criterion variables. Essentially, hierarchical regression analyses indicated that the relationships between perfectionism and the criterion variables were mostly based on main effects, although the variance accounted for by perfectionism was fairly small. However, there were some exceptions. First, for medical compliance,

perfectionism was not a significant predictor. Second, for substance use, interaction terms were significant as a set. These analyses also demonstrated that the specific dimensions of perfectionism, which significantly predicted the criterion variables, varied across health status and health behaviour variables. Specifically, for health symptoms, socially prescribed perfectionism was significant. Self oriented and socially prescribed perfectionism significantly predicted health care utilization. Diet and exercise was significantly accounted for by self oriented and socially prescribed perfectionism. Substance use was significantly predicted by self oriented perfectionism. Finally, socially prescribed perfectionism was a significant predictor of safe driving.

Re-Testing the model separately for each sex: Coping styles as a moderator in the relationship between perfectionism and health status and health behaviours.

After testing the model as discussed above, the model was re-tested separately for each sex. In this way it could be determined if the same pattern of relationships held for both men and women. Similar to the above, hierarchical multiple regression analyses were conducted for each dependent variable. Analyses were organized in the following manner. On step one, perfectionism was entered as a set (Baron & Kenny, 1986; Cohen & Cohen, 1983). On step two, the moderator variable, coping styles, were entered as a set (Baron & Kenny, 1986; Cohen & Cohen, 1983). Finally, on the third step, interaction terms between the independent and moderator variable were entered as a set (Baron & Kenny, 1986; Cohen & Cohen, 1983). Table 6 shows results of these analyses.

For women, the model significantly predicted health symptoms. Perfectionism significantly accounted for variability in the criterion variable. Within the set greater

Table 6. Hierarchical regression analysis in which perfectionism, coping styles, and interactions are used to predict health symptoms and health beahviours separately for women and men.

Criterion Variable:	sr^2	ß	R^2 change	df	F	p
Health Symptoms, Women						
1. SOP	0.00	0.06				
SPP	0.06	0.29***				
OOP	0.01	-0.13*	0.08	3, 435	13.86	.00
2. Problem Solving	0.00	0.06				
Support Seeking	0.00	-0.02				
Avoidance	0.09	0.33***	0.09	3, 450	17.26	.00
3. SOP by Avoidance	0.00	-0.47				
SOP by Problem Solving	0.00	-0.37				
SOP by Support Seeking	0.00	-0.43				
SPP by Avoidance	0.00	0.16				
SPP by Problem Solving	0.00	0.06				
SPP by Support Seeking	0.00	0.18				
OOP by Avoidance	0.00	-0.04				
OOP by Problem Solving	0.00	0.10				
OOP by Support Seeking	0.00	-0.07	0.01	9, 441	0.83	.59
Overall Model:		R^2 :	0.19	15, 441	7.00	.00
Health Symptoms, Men						
1. SOP	0.02	-0.17**				
SPP	0.15	0.42***				
OOP	0.00	-0.04	0.16	3, 309	19.04	.00
2. Problem Solving	0.00	-0.01				
Support Seeking	0.02	0.13**				
Avoidance	0.04	0.23***	0.06	3, 306	7.63	.00
3. SOP by Avoidance	0.00	0.01				
SOP by Problem Solving	0.00	0.46				
SOP by Support Seeking	0.00	-0.32				
SPP by Avoidance	0.00	0.02				
SPP by Problem Solving	0.00	-0.47				
SPP by Support Seeking	0.00	0.16				
OOP by Avoidance	0.00	-0.10				
OOP by Problem Solving	0.00	0.11				
OOP by Support Seeking	0.00	0.49	0.00	9, 297	0.43	.92
Overall Model:		R^2 :	0.22	15, 297	5.74	.00

Table 6. Continued

Criterion Variable:	sr^2	ß	R^2 change	df	F	p
Health Care Utilization, Women						
1. SOP	0.02	-0.18**				
SPP	0.02	0.15**				
OOP	0.00	0.04	0.03	3, 455	4.74	.00
2. Problem Solving	0.00	-0.02				
Support Seeking	0.00	0.07				
Avoidance	0.01	0.12*	0.02	3, 452	2.74	.04
3. SOP by Avoidance	0.00	-0.21				
SOP by Problem Solving	0.00	-0.42				
SOP by Support Seeking	0.00	-0.42				
SPP by Avoidance	0.00	-0.84				
SPP by Problem Solving	0.00	0.00				
SPP by Support Seeking	0.00	0.31				
OOP by Avoidance	0.00	0.22				
OOP by Problem Solving	0.00	-0.02				
OOP by Support Seeking	0.00	-0.07	0.01	9, 443	0.45	.90
Overall Model:		R^2 :	0.06	15, 443	1.76	0.04
Health Care Utilization, Men						
1. SOP	0.01	-0.13*				
SPP	0.02	0.14*				
OOP	0.01	-0.10	0.04	3, 309	4.22	.01
2. Problem Solving	0.03	-0.17**				
Support Seeking	0.00	0.04				
Avoidance	0.02	0.13*	0.04	3, 306	4.96	.00
3. SOP by Avoidance	0.00	0.44				
SOP by Problem Solving	0.00	0.43				
SOP by Support Seeking	0.00	0.04				
SPP by Avoidance	0.00	-0.31				
SPP by Problem Solving	0.01	-0.87				
SPP by Support Seeking	0.00	-0.25				
OOP by Avoidance	0.00	0.04				
OOP by Problem Solving	0.00	-0.32				
OOP by Support Seeking	0.01	0.70	0.03	9, 297	1.12	.35
Overall Model:		R^2 :	0.11	15, 297	2.54	.00

Table 6. continued

Criterion Variable:	sr^2	ß	R^2 change	df	F	p
Diet and Exercise, Women						
1. SOP	0.00	0.08				
SPP	0.01	-0.13*				
OOP	0.00	0.07	0.02	3, 454	2.66	0.05
2. Problem Solving	0.02	0.14**				
Support Seeking	0.00	0.04				
Avoidance	0.03	-0.18***	0.06	3, 451	10.20	.00
3. SOP by Avoidance	0.00	-0.49				
SOP by Problem Solving	0.00	0.38				
SOP by Support Seeking	0.00	-0.27				
SPP by Avoidance	0.00	-0.35				
SPP by Problem Solving	0.01	-0.70				
SPP by Support Seeking	0.00	-0.17				
OOP by Avoidance	0.01	0.59				
OOP by Problem Solving	0.00	-0.03				
OOP by Support Seeking	0.00	0.12	0.02	9, 442	1.000	0.44
Overall Model:		R^2 :	0.10	15, 442	3.21	.00
Diet and Exercise, Men						
1. SOP	0.01	0.04*				
SPP	0.03	0.04**				
OOP	0.00	0.21	0.04	3, 305	4.59	.00
2. Problem Solving	0.01	0.13*				
Support Seeking	0.00	-0.03				
Avoidance	0.00	-0.04	0.02	3, 302	1.78	.02
3. SOP by Avoidance	0.00	0.46				
SOP by Problem Solving	0.01	-0.97				
SOP by Support Seeking	0.00	0.29				
SPP by Avoidance	0.00	-0.37				
SPP by Problem Solving	0.00	-0.00				
SPP by Support Seeking	0.00	-0.31				
OOP by Avoidance	0.00	-0.30				
OOP by Problem Solving	0.00	0.53				
OOP by Support Seeking	0.00	0.35	0.02	9, 293	0.71	.70
Overall Model:		R^2 :	0.08	15, 293	1.70	.06

Table 6. continued

Criterion Variable:	sr^2	ß	R^2 change	df	F	p
Substance Use, Women						
1. SOP	0.01	0.13*				
SPP	0.00	0.00				
OOP	0.00	0.03	0.02	3, 454	3.31	.02
2. Problem Solving	0.00	0.01				
Support Seeking	0.00	0.02				
Avoidance	0.01	-0.09	0.01	3, 451	1.31	.27
3. SOP by Avoidance	0.01	0.56				
SOP by Problem Solving	0.00	0.43				
SOP by Support Seeking	0.00	0.52				
SPP by Avoidance	0.00	0.18				
SPP by Problem Solving	0.01	-0.68				
SPP by Support Seeking	0.00	-0.22				
OOP by Avoidance	0.00	-0.29				
OOP by Problem Solving	0.00	0.34				
OOP by Support Seeking	0.01	0.93	0.05	9, 442	2.51	.09
Overall Model:		R^2 :	0.08	15, 442	2.46	.00
Substance Use, Men						
1. SOP	0.01	0.11				
SPP	0.01	-0.10				
OOP	0.00	0.03	0.02	3, 308	2.02	.11
2. Problem Solving	0.01	-0.09				
Support Seeking	0.00	-0.06				
Avoidance	0.02	-0.14*	0.03	3, 305	3.14	.03
3. SOP by Avoidance	0.00	0.26				
SOP by Problem Solving	0.00	-0.15				
SOP by Support Seeking	0.00	0.17				
SPP by Avoidance	0.00	0.49				
SPP by Problem Solving	0.00	-0.41				
SPP by Support Seeking	0.00	-0.35				
OOP by Avoidance	0.01	-0.59				
OOP by Problem Solving	0.00	0.16				
OOP by Support Seeking	0.00	0.19	0.02	9, 296	0.69	.72
Overall Model:		R^2 :	0.26	15, 296	1.45	.12

Table 6. continued

Criterion Variable:	sr^2	ß	R^2 change	df	F	p
Safe Driving, Women						
1. SOP	0.00	0.02				
SPP	0.01	-0.12*				
OOP	0.00	0.05	0.01	3, 451	1.89	.13
2. Problem Solving	0.02	0.13**				
Support Seeking	0.00	-0.02				
Avoidance	0.02	-0.16**	0.04	3, 448	6.89	.00
3. SOP by Avoidance	0.00	0.23				
SOP by Problem Solving	0.00	0.35				
SOP by Support Seeking	0.00	0.48				
SPP by Avoidance	0.00	0.38				
SPP by Problem Solving	0.00	-0.30				
SPP by Support Seeking	0.00	-0.13				
OOP by Avoidance	0.00	-0.02				
OOP by Problem Solving	0.00	-0.22				
OOP by Support Seeking	0.00	-0.01	0.01	9, 439	0.61	0.79
Overall Model:		R^2 :	0.07	15, 439	2.12	.01
Safe Driving, Men						
1. SOP	0.00	0.04				
SPP	0.02	-0.16**				
OOP	0.00	-0.07	0.03	3, 307	3.46	.02
2. Problem Solving	0.01	0.10				
Support Seeking	0.01	-0.08				
Avoidance	0.02	-0.16**	0.04	3, 304	4.10	.01
3. SOP by Avoidance	0.03	1.21				
SOP by Problem Solving	0.00	0.10				
SOP by Support Seeking	0.00	0.39				
SPP by Avoidance	0.00	0.29				
SPP by Problem Solving	0.00	-0.20				
SPP by Support Seeking	0.00	-0.48				
OOP by Avoidance	0.00	-0.53				
OOP by Problem Solving	0.00	0.14				
OOP by Support Seeking	0.00	0.23	0.04	9, 295	1.53	.62
Overall Model:		R^2 :	0.11	15, 295	2.48	.00

Table 6. continued

Criterion Variable:	sr^2	ß	R^2 change	df	F	p
Medical Compliance, Women						
1. SOP	0.00	-0.01				
SPP	0.01	-0.08				
OOP	0.00	0.04	0.01	3, 454	0.98	.40
2. Problem Solving	0.01	0.08				
Support Seeking	0.01	0.10				
Avoidance	0.00	-0.06	0.02	3, 451	3.24	.02
3. SOP by Avoidance	0.00	0.37				
SOP by Problem Solving	0.00	-0.43				
SOP by Support Seeking	0.00	0.25				
SPP by Avoidance	0.00	0.07				
SPP by Problem Solving	0.00	0.07				
SPP by Support Seeking	0.00	0.36				
OOP by Avoidance	0.00	-0.22				
OOP by Problem Solving	0.00	0.03				
OOP by Support Seeking	0.00	-0.32	0.01	9, 442	0.48	.89
Overall Model:		R^2 :	0.04	15, 442	1.12	.33
Medical Compliance, Men						
1. SOP	0.00	0.02				
SPP	0.00	-0.03				
OOP	0.01	-0.09	0.01	3, 304	0.91	.44
2. Problem Solving	0.00	-0.02				
Support Seeking	0.00	0.03				
Avoidance	0.01	-0.09	0.0070	3, 301	0.72	.54
3. SOP by Avoidance	0.00	-0.24				
SOP by Problem Solving	0.00	0.13				
SOP by Support Seeking	0.01	0.74				
SPP by Avoidance	0.00	0.18				
SPP by Problem Solving	0.00	0.00				
SPP by Support Seeking	0.00	-0.23				
OOP by Avoidance	0.00	-0.26				
OOP by Problem Solving	0.00	-0.68				
OOP by Support Seeking	0.00	-0.26	0.02	9, 292	0.63	.77
Overall Model:		R^2 :	0.03	15, 292	0.70	.78

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

socially prescribed perfectionism predicted increased symptoms and greater other oriented perfectionism predicted decreased symptom reports. Although other oriented perfectionism significantly predicted decreased health symptoms, the correlation between these two variables was positive, although not significant. As such, this result should be interpreted with caution. Nonetheless, this hierarchical regression analysis indicated that, after controlling for the effects of self oriented and socially prescribed perfectionism on other oriented perfectionism, there is a unique component to other oriented perfectionism that predicts decreased reports of health symptoms. Residuals analyses indicated that the model adequately described the data.

For men, the overall model was a significant predictor of health symptoms. Perfectionism significantly predicted the criterion. Self oriented perfectionism predicted decreased symptoms and socially prescribed perfectionism predicted increased reports of symptoms. Coping styles significantly accounted for the variability in health symptoms, with increased support seeking and avoidance coping predicting increased symptom reports. Interactions were not significant. Residuals analyses indicated that the model was adequate.

For women, the model significantly predicted the variance in health care utilization. Perfectionism significantly accounted for the variance in the criterion variable. Within the set, increased self oriented perfectionism predicted decreased health care utilization and increased socially prescribed perfectionism predicted increased health care utilization. The set of coping styles significantly predicted health care utilization. However, only avoidance coping was significant, with increased scores predicting increased health care utilization. Interactions were not significant. A standardized

residuals histogram indicated that the distribution is not normal, and a standardized residuals plot revealed non-linearity. This indicated that the model did not adequately predict health care utilization.

In the male sample, the model significantly accounted for health care utilization. Perfectionism significantly predicted the criterion variable. Within this set both self oriented and socially prescribed perfectionism were significant; increased scores on the former predicted decreased health care utilization and increased scores on the latter predicted increased health care utilization. The set of coping styles was also significant. Within the set, problem solving significantly predicted decreased health care utilization and avoidance significantly predicted increased health care utilization. Interaction terms were not significant. Residuals analyses indicated that the distribution is not normal and revealed some non-linearity. This suggested that the model did not adequately predict health care utilization in this sample

For women, the model significantly accounted for the variability in diet and exercise. Perfectionism was a significant predictor. However, within this set, only socially prescribed perfectionism was significant, predicting decreased involvement in diet and exercise. Coping styles significantly accounted for the variance in diet and exercise; both problem solving and avoidance coping were significant within the set. Increased scores on the former predicted increased diet and exercise while increased scores on the latter predicted decreased diet and exercise. Interaction terms were not significant. Residuals analyses indicated that the model was adequate. The overall model was not significant in predicting diet and exercise in men.

For women, the model significantly accounted for the variance in substance use. Perfectionism was a significant predictor. Within the set only self oriented perfectionism was significant, with increased scores predicting increased substance use. Neither coping styles nor interactions were significant. A standardized residuals histogram indicated that the model was not adequate in predicting substance use. For men, the model did not significantly predict substance use.

For women, the model significantly predicted the variance in safe driving. The set of perfectionism variables was not significant. However, coping styles significantly accounted for the variability in the criterion variable. Both problem solving and avoidance coping were significant predictors. Increased scores on the former predicted increased safe driving and increased scores on the latter predicted decreased safe driving. The interaction terms were not significant. Residuals analyses indicated that the model adequately described the data.

For men, the overall model was significant in predicting safe driving. Perfectionism significantly accounted for the variability in the criterion variable. Only socially prescribed perfectionism was significant, with increased scores predicting decreased safe driving behaviours. The set of coping styles significantly predicted variability in safe driving. Within the set, only avoidance coping was significant, with increased scores predicting decreased safe driving. Interactions were not significant. In the residuals analyses, a standardized residual histogram indicated that the distribution is not normal. Furthermore, a standardized residuals scatterplot indicated that the model did not adequately predict safe driving.

Finally, when analyzing the model separately for men and women, the model did not significantly predict medical compliance.

In conclusion, examining the model separately for each sex clarified a number of issues. First, it specified how the model differed in predicting health status and health behaviours for men and women. Thus, it indicated that for men, the model did not significantly predict diet and exercise, substance use, and medical compliance. For women, the model did not significantly predict medical compliance. Furthermore, it became clear that the model accounted for different amounts of variability in each criterion variable, for each sex, although the variance accounted for by the predictors was minimal for both men and women. Finally, it clarified the specific dimensions of perfectionism and coping styles that significantly predict the criterion variables for men and women. Specifically, for men, significant predictors of health symptoms were self oriented perfectionism, socially prescribed perfectionism, problem solving, and avoidance coping. For women, socially prescribed perfectionism, other oriented perfectionism, and avoidance coping were significant predictors of health symptoms. In men, health care utilization was accounted for by self oriented perfectionism, socially prescribed perfectionism, problem solving, and avoidance coping. For women, self oriented perfectionism, socially prescribed perfectionism, and avoidance coping were significant predictors of health care utilization. For men, diet and exercise was not predicted by the model; however, for women, socially prescribed perfectionism, problem solving, and avoidance coping were significant predictors. For men, the model was not significant in predicting substance use. However, for women, socially prescribed perfectionism was a significant predictor of substance use. In men, safe driving was accounted for by socially

prescribed perfectionism and avoidance coping and for women, socially prescribed perfectionism, problem solving, and avoidance coping were significant predictors. Finally, medical compliance was not predicted by the model in either men or women.

Exploratory Analyses

Hierarchical regression analyses of the model proposed in this study did not support the moderation model. However, an important and significant finding was that main effects for perfectionism significantly predicted health status and health behaviours. Thus, the question that arose from this finding was, after controlling for health behaviours, does perfectionism still predict health status? Furthermore, as main effects for both perfectionism and coping styles were found to be predictive of health status and health behaviours, it was also considered that coping styles might function as a mediator in the perfectionism-health connection. The following examines results from those exploratory tests.

Predicting health status from perfectionism, after controlling for health behaviours.

It was discussed that literature found that individuals who engage in self-care behaviours, such as nutritional health practices, weight management, decreased alcohol consumption, etc., also tend to report better health status (e.g., Goldsmith Cwickel, et al., 1988; Belloc & Breslow, 1972; Belloc, 1973; and Wickrama, Conger, & Lorenz, 1995). Therefore, as statistical analyses showed that perfectionism was a significant predictor of health status, it was important to determine if perfectionism accounted for the variability in health status, after the variability in health care behaviours was controlled for. To this effect, hierarchical multiple regression analyses, shown in Table 7, were performed

separately for each of health symptoms and health care utilization, in the following order. On the first step, health behaviours were entered, including medical compliance, safe driving, diet and exercise, and substance use. In this way, health behaviours were controlled for (Cohen & Cohen, 1983) prior to entering perfectionism. On step 2, the three dimensions of perfectionism were entered as a set to determine main effects in predicting the criterion variables.

For the criterion variable health symptoms, the overall model was significant. On the first step, the set of health behaviours significantly accounted for 9% of the variability in the criterion variable. After controlling for health behaviours, perfectionism significantly contributed to the prediction of variance in health symptoms. Specifically, increased socially prescribed perfectionism significantly predicted increased health symptoms and other oriented perfectionism significantly predicted decreased health symptoms. Residuals analyses indicated that the model was adequate.

For health care utilization, the overall model was significant. After controlling for health behaviours, the set of perfectionism dimensions significantly accounted for the variance in the criterion variable. Both self oriented and socially prescribed perfectionism were significant predictors. Increased scores on the former predicted decreased health care utilization and increased scores on the latter predicted increased health care utilization. A standardized residuals scatterplot revealed some heteroscedasticity, indicating a problem with the model.

Table 7. Results of hierarchical regression analysis in which perfectionism is regressed on health status after controlling for health beahviours.

Criterion Variable	sr^2	ß	R^2 change	F	df	p
Health Symptoms						
1. Medical Compliance	0.03	0.22***				
Safe Driving	0.01	-0.11**				
Diet and Exercise	0.02	-0.18***				
Substance Use	0.00	-0.06	0.09	17.99	4, 766	.00
2. SOP	0.00	-0.02				
SPP	0.08	0.31***				
OOP	0.01	-0.10**	0.08	24.47	3, 763	.00
Overall Model:		R^2 :	0.17	21.71	7, 763	.00
Health Care Utilization						
1. Medical Compliance	0.11	0.34***				
Safe Driving	0.00	0.03				
Diet and Exercise	0.01	-0.11**				
Substance Use	0.00	-0.01	0.12	26.43	4, 769	.00
2. SOP	0.02	-0.16***				
SPP	0.02	0.16***				
OOP	0.00	-0.02	0.03	9.36	3, 766	.00
Overall Model:		R^2 :	0.15	19.51	7, 766	.00

* $p < .05$. ** $p < .01$. *** $p < .001$.

In conclusion, these analyses revealed a number of significant findings. First, after controlling for the effects of health behaviours, perfectionism was still found to be a significant predictor of health symptoms and health care utilization; however, the variance accounted for by perfectionism was fairly small. Second, these analyses specified the particular dimensions of perfectionism that significantly accounted for the variance in health status. Specifically, socially prescribed and other oriented perfectionism were significant predictors of health status, and self oriented and socially prescribed perfectionism were significant predictors of health care utilization.

Testing the mediating role of coping styles in the perfectionism-health connection.

The introduction section presented literature that specified how and why perfectionism and coping are related, as well as their relationship with health. Based on this literature, a model was proposed in which coping styles moderated the relationship between perfectionism and health. While statistical analyses did not support this model, it did indicate that main effects for both perfectionism and coping styles were significant predictors of health status and health behaviours. Thus, it was questioned whether perfectionism and coping styles may be linked to the criterion variables in another way, specifically, through mediation. This was explored in the following analyses.

According to Baron & Kenny (1986), mediation occurs when the independent variable is significantly related to the mediator, when the mediator significantly accounts for variability in the dependent variable, and when a previously significant relationship between the independent and dependent variables is no longer significant, after the independent and mediator variables are statistically controlled. From previous analyses it was clear that the independent variable, perfectionism, was significantly related to the

mediator, coping styles, and that coping styles significantly accounted for the variability in the criterion variables, health status and health behaviours. Thus, it remained to be determined if the relationship between the independent variable, perfectionism, and criterion variables, health status and health care utilization, would no longer be significant after the independent variable and mediator were statistically controlled for. To determine this, the following analyses were performed.

Hierarchical multiple regression analyses were performed separately for each criterion variable. As this was an exploratory study, the role of sex was not included in the analyses. On the first step, perfectionism dimensions were entered as a set, as this was the predictor variable. On step two, the mediator variables were entered. At this step, mediation could be determined by examining the relationship between the independent variable (perfectionism) and dependent variable (health status and health behaviours). Specifically, if at step two, beta weights for perfectionism variables were non-significant, after being significant on step one, mediation can be said to occur (Baron & Kenny, 1986). Baron and Kenny (1986) also suggest that the relationship between the independent and dependent variable does not need to be completely eliminated for mediation to occur. Rather, if the relationship is significantly reduced, it demonstrates that the mediator is effective, although not necessary for a relationship to occur. Thus, if at step two perfectionism variables showed lowered beta weights from step one, this would suggest that some mediation is occurring. Table 8 presents results of these analyses.

In predicting health symptoms, the overall model was significant. On step one, perfectionism significantly accounted for the variability in the criterion, and both socially

Table 8. Results of hierarchical regression analysis in which coping is tested as a mediator between perfectionism and health.

Criterion Variable:	sr^2	ß	R^2 change	df	F	p
Health Symptoms						
1. SOP	0.00	-0.05				
SPP	0.10	0.35***				
OOP	0.01	-0.13**	0.10	3, 766	28.34	.00
2. Avoidance	0.07	0.29***				
Problem Solving	0.00	0.01				
Support Seeking	0.01	0.12***	0.09	3, 763	28.39	.00
ß for perfectionism after coping:						
SOP	0.00	-0.03				
SPP	0.04	0.25***				
OOP	0.01	-0.09*				
Overall Model:		R^2 :	0.19	6, 763	28.89	.00
Health Care Utilization						
1. SOP	0.02	-0.16***				
SPP	0.02	0.15***				
OOP	0.00	-0.04	0.03	3, 768	9.11	.00
2. Avoidance	0.01	0.13***				
Problem Solving	0.01	-0.08*				
Support Seeking	0.01	0.11***	0.03	3, 765	8.58	.00
ß for perfectionism after coping:						
SOP	0.01	-0.14**				
SPP	0.01	0.10*				
OOP	0.00	-0.03				
Overall Model:		R^2 :	0.07	6, 765	8.98	.00
Diet and Exercise						
1. SOP	0.01	0.11*				
SPP	0.02	-0.16***				
OOP	0.00	0.06	0.03	3, 763	6.94	.00
2. Avoidance	0.01	-0.13***				
Problem Solving	0.02	0.14***				
Support Seeking	0.00	0.01	0.04	3, 760	10.45	.00
ß for perfectionism after coping:						
SOP	0.00	0.06				
SPP	0.01	-0.09*				
OOP	0.00	0.04				
Overall Model:		R^2 :	0.07	6, 760	8.82	.00

Table 8. continued

Criterion Variable	sr^2	ß	R^2 change	df	F	p
Substance Use						
1. SOP	0.01	0.12**				
SPP	0.00	-0.04				
OOP	0.00	-0.00	0.01	3, 766	2.93	.03
2. Avoidance	0.01	0.10**				
Problem Solving	0.00	-0.05				
Support Seeking	0.00	0.06	0.01	3, 763	3.30	.02
ß for perfectionism after coping:						
SOP	0.01	0.12**				
SPP	0.00	-0.00				
OOP	0.00	-0.01				
Overall Model:		R^2 :	0.02	6, 763	3.13	.00
Safe Driving						
1. SOP	0.00	0.02				
SPP	0.01	-0.13**				
OOP	0.00	-0.04	0.02	3, 762	5.16	.00
2. Avoidance	0.02	-0.14***				
Problem Solving	0.01	.09*				
Support Seeking	0.00	0.05	0.03	3, 759	8.21	.03
ß for perfectionism after coping:						
SOP	0.00	-0.02				
SPP	0.00	-0.06				
OOP	0.00	-0.06				
Overall Model:		R^2 :	0.05	6, 759	6.76	.00
Medical Compliance						
1. SOP	0.00	-0.00				
SPP	0.00	-0.05				
OOP	0.00	-0.05	0.01	3, 762	2.01	.11
2. Avoidance	0.00	-0.06				
Problem Solving	0.00	0.02				
Support Seeking	0.02	0.15***	0.03	3, 759	6.73	.00
ß for perfectionism after coping:						
SOP	0.00	-0.02				
SPP	0.00	-0.02				
OOP	0.00	-0.06				
Overall Model:		R^2 :	0.03	6, 759	4.39	.00

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

prescribed and other oriented perfectionism were significant. On step two, the set of coping styles was significant, with avoidance and support seeking significant within the set. At this step, beta weights for both socially prescribed and other oriented perfectionism were significant. However, the effect of other oriented perfectionism dropped. This indicated that some mediation may be occurring. Residuals analyses indicated that the model adequately described the data.

For health care utilization, the overall model was significant. Perfectionism was a significant predictor on step one, with both self oriented and socially prescribed perfectionism significant predictors. On step two, coping styles significantly contributed to the variance in the criterion variable. All coping styles were significant within the set. At this step, the betas for self oriented and socially prescribed perfectionism decreased, suggesting that some mediation may be occurring. A standardized residuals plot indicated some non-linearity and a standardized residuals scatterplot revealed heteroscedasticity. This indicated that the model was not adequate.

The overall model was significant in predicting the variability in diet and exercise. Perfectionism was a significant predictor, and both self oriented and socially prescribed perfectionism were significant within the set. On step two, coping styles significantly predicted the variability in the criterion, and avoidance and problem solving were significant predictors. At this step, self oriented perfectionism was no longer significant, and the beta for socially prescribed perfectionism decreased. This indicated that avoidance and problem solving coping may mediate the relationship between self oriented perfectionism and diet and exercise. In addition, some mediation may be occurring in the relationship between socially prescribed perfectionism and diet and

exercise. Residuals analyses indicated a normal standardized residual plot. However, a standardized residuals scatterplot revealed some heteroscedasticity. This suggested that the model was not adequate in predicting diet and exercise.

For the criterion variable substance use, the overall model was significant. Perfectionism significantly accounted for the variability in the criterion variable; however, only self oriented perfectionism was significant. On step two, the set of coping styles was significant. Within the set, only avoidance coping was a significant predictor. At this step, self oriented perfectionism was still significant in predicting substance use. Thus, no mediation is seen to occur. Residuals analyses revealed some heteroscedasticity, indicating that the model was not adequate in predicting substance use.

For the criterion variable safe driving, the overall model was significant. Perfectionism significantly predicted the variability in the criterion; however, only socially prescribed perfectionism was significant. The set of coping styles significantly accounted for the variability in the criterion variable; within this set, avoidance and problem solving were significant. At this step, socially prescribed perfectionism was no longer significant. Thus, some mediation may be occurring. The standardized residuals plot and scatterplot were normal.

The overall model was significant in predicting medical compliance. On step one, the set of perfectionism variables were not significant predictors. At step two, the coping styles significantly accounted for the variance in the criterion variable. Only support seeking was significant within the set. No mediation occurred with the dependent variable medical compliance. Residuals analyses did not indicate a problem with the model.

In testing coping styles as a mediator in the perfectionism-health relationship, some interesting findings were discovered. First, no mediation was found for the criterion variables health symptoms, substance use, and medical compliance. Only main effects accounted for the variability in those criterion variables. Analyses supported the possibility that some coping styles may mediate the relationship between perfectionism and health care utilization, diet and exercise, and safe driving, although the variance accounted for in the criterion is fairly small. Specifically, for health care utilization, the effects of self oriented and socially prescribed perfectionism were lowered on step two, supporting that some mediation effects may be occurring. For diet and exercise, self oriented perfectionism was no longer significant at step two, suggesting that coping styles may mediate the relationship between self oriented perfectionism and diet and exercise. In addition, at step two, the effect of socially prescribed perfectionism was reduced in predicting diet and exercise, suggesting that some mediation may be occurring. Finally, for safe driving behaviours, socially prescribed perfectionism was no longer significant at step two, indicating that coping styles may mediate the relationship between socially prescribed perfectionism and safe driving behaviours. The above analyses are consistent with what would be interpreted as mediation (Baron and Kenny, 1986); however, beta weights, which were used to determine mediation, tend to be unstable. Thus, replication of these analyses, using another sample, may provide additional support for mediation.

Discussion

Perfectionism has been associated with the adjustment process, specifically, the manner in which individuals attempt to cope with daily problems and feelings of distress

(Flett, Russo, & Hewitt, 1994). In addition, perfectionism has been linked with stress (Hewitt & Flett, 1993) and the experience of somatic problems (Martin et al. 1996). Finally, coping has been suggested as a moderator in the stress-illness relationship (Cronkite & Moss, 1984). In light of the relationships among perfectionism, stress, coping, and somatic illness, this thesis intended to demonstrate empirically that perfectionism directly affects somatic health and further, that coping styles moderate this relationship. In general, it was expected that individuals who score high on perfectionism and who use avoidance coping would be more likely to have health problems while high scoring perfectionists using problem solving or support seeking would be less likely to have health problems.

This study also proposed that perfectionistic motivations and characteristics interfere with perfectionists' involvement in health behaviours. As such, this study intended to show empirically that perfectionists may be less involved in positive health behaviours. Furthermore, literature suggests that coping styles may influence individuals' involvement in health behaviours. Therefore, this study also proposed that coping style would moderate the relationship between perfectionism and health behaviours. In general, individuals scoring high on perfectionism who use avoidance coping would be less likely to be involved in health behaviours while high scoring perfectionists who use problem solving or support seeking would be more likely to be involved in health behaviours.

To sum, this study proposed to show empirically that perfectionism is a health risk because of its' relationship with health status and health behaviours. In addition, it tested

a unique model in which coping styles function as a moderator in the relationship between perfectionism and health status and health behaviours.

Several issues are raised by the findings of this thesis. First, perfectionism as a general trait was shown to be a health risk, both in terms of health status and health behaviours. Second, coping styles did not moderate the perfectionism-health relationship. In addition, a surprising finding was that, although perfectionism is maladaptive in terms of the health risk it poses, it also has some adaptive features related to health. That is, in some specific situations it was found to predict better health status and increased involvement in health behaviours. Finally, the use of a multidimensional model of perfectionism revealed consistent and unique relationships between the dimensions of perfectionism and health. These issues are discussed in turn.

Results from this study showed that, as predicted, perfectionism was directly related to health status, although the strengths of the relationships were modest. The dimensions of perfectionism that were significantly correlated with health status variables were related such that individuals reporting high levels of perfectionism reported greater health symptoms and greater health care utilization. This directional relationship was found for both men and women. Results also indicated that perfectionism was a health risk with regard to health behaviours, although the strengths of the relationships were modest. In essence, perfectionism was broadly associated with decreased involvement in healthy behaviours (e.g., diet and exercise, safe driving, medical compliance) and increased involvement in adverse health behaviours (e.g., substance use, unsafe driving practices), although some relationships differed across men and women, and across the dimensions of perfectionism.

To summarize, this study found that the general orientation of perfectionism may be a health risk, because of its' relationship with somatic symptoms, use of health care facilities, and involvement in health behaviours. These findings make significant contributions to the literature. First, these support the few studies available that found some elements of perfectionism to be a health risk (e.g., Morris, 1961; Martin et al., 1996). Furthermore, these results support empirical evidence that indicates that personality variables influence physical health (e.g., Suls & Rittenhouse, 1987; Jenkins, 1978). Results also support this study's hypothesis that perfectionistic characteristics, motivations (e.g., excessively high goals, fear of failure, and fear of disapproval), and irrational beliefs (e.g., If I fail at any one goal I am a failure, If I cannot stay healthy I am a failure) may affect the amount of time devoted to health behaviours and the desire to recognize somatic illness and need for health behaviours.

Results from this study did not support the proposed model of perfectionism and health. That is, coping styles did not significantly interact with the dimensions of perfectionism to predict health status and health behaviours. However, as expected, coping styles contributed independent main effects.

A number of explanations can be hypothesized to explain the non-significant interactions. First, it may be that perfectionism and coping are related to health status and health behaviours only through main effects. Thus, although the literature supports that perfectionism, coping styles, and health are inter-related, the former two variables did not interact to explain how and why perfectionism predicts health status and health behaviours.

Another reason for this study's non-significant moderating model may be due to confounding variables, such as situational characteristics of stressors. For instance, similar to other studies in the literature (e.g., Amirkhan, 1990), this study examined individuals consistent use of particular styles of coping when confronting life problems. However, other literature suggests that situational factors influence an individual's choice of coping strategies. For example, Parkes (1986) examined various studies that consistently found that situational appraisals of events influenced the type of coping strategies individuals used. Taking this into account, it is possible that the relationship between perfectionism and coping styles varies across different situations or environments. As this study does not take these factors into consideration, they may be unknowingly influencing the perfectionism-coping-health connection.

Specific to this study, two situational factors that may influence how perfectionists cope include achievement and interpersonal stressors. As perfectionists are generally concerned with setting and accomplishing goals, their choice of coping responses may depend on whether or not the stressor is a threat to goal attainment. However, an individual's perfectionistic motivation is likely to influence the choice of coping strategies used when confronted by different types of stressors. For example, self oriented perfectionists are motivated to set and fulfill achievement goals. Thus, self oriented perfectionists may use different coping strategies when faced with a situation involving threatening achievement stressors (e.g., possible failure) than when faced with threatening interpersonal stressors (e.g., possible loss of friendship). However, socially prescribed perfectionists may be generally concerned with achievement goals because they are a means for fulfilling their interpersonal goals (e.g., avoid negative evaluation,

avoid others from seeing their failure, and interpersonal approval). Thus, socially prescribed perfectionists may use different strategies when dealing with stressors that involve situations related to interpersonal evaluation and criticism (e.g., in work or school setting) than when faced with stressors in a solitary environment (e.g., in one's room, or when alone in the car).

In essence, the perfectionistic motivation (e.g., self oriented, socially prescribed, other oriented) and situational factors related to the stressor (e.g., achievement or interpersonal stressor) may influence the association between perfectionism and coping. In turn, this may affect how they are linked with health. Thus, it is possible that this study found no significant interactions between perfectionism and coping because it did not take into consideration situational variables. A future study that examines coping styles across different stressors and environments may more clearly depict the perfectionism-coping-health connection.

The findings in this study may also be a result of differences in the way coping was measured in this study compared with the way coping was measured by other researchers. For instance, Flett, Russo, and Hewitt (1994) used the Constructive Thinking Inventory which measures cognitive responses such as self-acceptance thoughts, fretting and ruminating over problems and negative outcomes, distrust of others, overgeneralization tendencies, optimism, and pessimism. Other researchers examined coping tendencies by investigating characteristics such as problem solving confidence (Flett, Hewitt, & Blankstein, 1994) and self-efficacy (Martin et al., 1996). Furthermore, Martin et al. (1996) found that self-efficacy and perfectionism interacted to predict physical symptom report. Thus, while the above studies investigated coping by

examining cognitive tendencies and personality characteristics, this thesis used a coping scale that assessed three distinct coping styles that refer to behaviours such as problem solving strategies, avoidance behaviours, and support seeking. Perhaps it is cognitive coping responses, rather than behavioural responses, that significantly interact with perfectionism. Thus, a study which measures cognitive coping responses, rather than behavioural responses, may find support for the moderating model proposed in this study.

Finally, it is possible that perfectionism and health are linked through mediation of coping styles, rather than moderation. This study found some empirical support for mediation effects, although the statistical evidence was fairly small. However, it is possible that other mediator variables exist that link perfectionism with health status and health care behaviours, through a statistically stronger pathway.

As mentioned above, perfectionism was shown to be a health risk because of its association with health status and with health behaviours. However, results also indicated that, in some ways, perfectionism may be adaptive as it was associated with positive health outcomes. This suggests that perfectionism may include both maladaptive and adaptive features related to health status and health behaviours. The following reviews these surprising findings.

Results showed that some aspects of perfectionism may be maladaptive as they were linked with poorer health status, decreased involvement in positive health behaviours (e.g., diet and exercise, safe driving practices), and increased involvement in adverse health behaviours (e.g., substance use). However, these relationships were not consistent across sex, and across the dimensions of perfectionism. Some aspects of perfectionism were associated with or predictive of decreased report of health symptoms,

decreased health care utilization, and increased involvement in beneficial health behaviours (e.g., diet and exercise), although these relationships were fairly small. This supports the idea that some aspects of perfectionism may be adaptive. In an attempt to understand why perfectionism was found to be linked with both positive and negative health outcomes, perfectionism was tested as a non-linear predictor of health outcomes. Specifically, this would determine if extremely high and extremely low perfectionism scores were associated with poor health outcomes, and therefore maladaptive, and if there exists an optimal level of perfectionism that is linked with positive health outcomes, and is therefore adaptive. Statistical analyses did not support this notion.

As this study used a multidimensional perfectionism scale, it was possible to discern unique links between specific dimensions of perfectionism and health symptoms and health care utilization. These unique relationships shed light on how distinct perfectionistic motivations and characteristics can be adaptive or maladaptive and influence positive and negative health outcomes. Results reveal the following unique pattern of relationships.

Socially prescribed perfectionism appears to encompass maladaptive features as it was associated solely with poor health outcomes. Specifically, it was linked with increased reports of health symptoms and predicted increased health care utilization. Furthermore, this dimension of perfectionism was associated with and/or predicted decreased involvement in healthy behaviours (specifically, diet and exercise, safe driving, and medical compliance).

It had been expected that socially prescribed perfectionists would experience increased somatic problems because their perfectionistic motivations expose them to

unrealistic demands and prolonged states of stress. These individuals strive towards unrealistic other-prescribed perfectionistic standards, in spite of the fact that they feel those standards and expectations are excessive and uncontrollable, because they fear failure, negative evaluations, and disapproval (Hewitt & Flett 1991a). These characteristics and motivations were hypothesized to be health risks that affect perfectionists on a physiological level and influence their somatic health. Furthermore, it had been hypothesized that socially prescribed characteristics and motivations interfere with these perfectionists' involvement in health behaviours. For instance, there may be a lack of time to take care of oneself (e.g., through diet and exercise) as the perfectionist may be over-involved in fulfilling other-imposed expectations and standards, or in their drive to please others, they may drive while angry or while too tired. Although some differences were found across the sexes, results generally support that socially prescribed perfectionism may be a health risk, because it was linked with poorer health status and decreased involvement in health behaviours.

The dimension of self oriented perfectionism was shown to have a unique relationships with the outcome variables. Specifically, these relationship indicated that this dimension of perfectionism encompasses both maladaptive and adaptive aspects related to health. It was maladaptive as it was associated with increased reports of health symptoms in women and increased substance use in the overall and women's sample. However, it may also have an adaptive component as it was associated with and predicted decreased health care utilization in men and women, and greater involvement in diet and exercise in the overall sample.

It is interesting to note that self oriented perfectionism was related to poor health status only in women. Perhaps this indicates that men who are self oriented perfectionists are not affected by stress and physiological arousal associated with perfectionism in the same manner that women are, and therefore do not experience somatic symptoms. Alternatively, it is possible that, although men reported significantly fewer health symptoms than women, for men, the experience of symptoms is a function of age—thus, health problems would only be found in a sample of older men. That is, men high on self oriented perfectionism may experience somatic symptoms, however, only as they age and are exposed to more life experiences and stress. However, for women, possessing this dimension of perfectionism influences the experience of health problems at any age. A longitudinal study, or a study using an older sample, may determine that age is a requirement for men, and not women, to experience somatic symptoms related to perfectionism. Finally, this difference may be indicating that men are less likely than women to recognize and acknowledge the experience of physical symptoms. For instance, men may find it emotionally or psychologically threatening to recognize they are not physically "perfect".

Nonetheless, it was hypothesized that characteristics of self oriented perfectionism, such as setting high unrealistic standards for oneself, evaluating one's behaviour, and striving for perfection in all endeavors, would be stressful and affect these individuals physiologically. As a consequence they would be vulnerable to health problems. Results support that for women, self oriented perfectionism is a health risk that exposes individuals to somatic problems. However, an unexpected finding was that this dimension of perfectionism has adaptive features related to health status and health

behaviours. This supports other studies that found this dimension of perfectionism to be linked with adaptive features and positive adjustment (Frost et al., 1990; Hewitt & Flett, 1991a).

Finally, other oriented perfectionism was found to have unique relationships with health outcomes. This dimension of perfectionism was shown to have maladaptive and adaptive components related to health. Specifically, it was associated with fewer safe driving practices in the overall sample, indicating a maladaptive component related to health behaviours. However, it also predicted lower reports of health symptoms in the overall and women's sample, suggesting that other oriented perfectionism may encompass an adaptive component related to health status.

As results reported in the literature are inconclusive as to the relationship between other oriented perfectionism and health, it was unclear as to what relationships to expect. However, some interesting observations can be made on the relationships found. Other oriented perfectionists do not feel pressure or stress related to living up to self or other imposed standards, but rather, they impose perfectionistic standards on others. Thus, it is reasonable to suggest that these individuals do not experience poor health status as a result of the stress related to perfectionistic strivings. Instead, they pressure others to attain perfectionistic standards and may induce in others the physiological effects of perfectionism. The relationship found between other oriented perfectionism and health makes a unique contribution; however, research needs to further examine this to fully understand how this perfectionistic motivation affects health.

In conclusion, limited literature is available which explores the relationships between perfectionism and health status and health behaviours. Although the moderation

model was not supported in this thesis, results make a significant contribution by demonstrating that perfectionism may be a health risk, in relation to both health status and health behaviours. Furthermore, this study determined that perfectionism has both adaptive and maladaptive outcomes related to health. However, even more limited is literature that examines perfectionism's relationship with health from a multidimensional perspective. Results from this study make a further contribution as they revealed unique relationships between distinct components of perfectionism with health status and health behaviours.

Limitations and Advantages of the Study

There are a number of limitations with this study. One limitation is related to the sample used. This study used a fairly young sample. However, the elderly have had a wide variety of life experiences, have experienced more health problems, and may have more established coping styles. Thus, different relationships may be found between health and perfectionism in an older age group. As such, results from this study can only be generalized to individuals within the age group of participants in this study. Furthermore, by not including an older sample, it is difficult to make conclusions about the long-term implications of perfectionism and coping styles on health.

In addition, participants were selected from the general community; thus, this study is limited in understanding those individuals experiencing a chronic or terminal illness. Specifically, this sample is not likely to have many experiences with illnesses because they are a fairly young age group. The inter-relationships among

perfectionism, coping styles, health status, and health behaviours may differ in a population experiencing illnesses such as arthritis, irritable bowel syndrome, or cancer. A future study using such a sample may determine that there are unique relationships specific to individuals who are chronically ill. Furthermore, a longitudinal study with such a sample can help make predictions about perfectionists' adjustment and recovery from chronic or terminal illnesses.

Another problem with this study is related to the issue of coping. The literature indicates that there is a controversy over coping; specifically, it is not clear whether coping is a style or a process. As literature supports that coping styles are generally permanent and long term, this study used a measure that examines coping as a style. However, literature also supports that coping styles can change across situational events, making coping a process. This study did not address the situational aspect of coping and thus it is not possible to make conclusions about how different situations influence the coping styles of perfectionists. That is, some situations may lead perfectionists to cope with specific strategies, while other situations may discourage the use of those strategies. Taking situational factors into consideration may help further clarify the link among perfectionism, coping, and health.

A further problem with this study is in the measures used to assess health status and health behaviours. Literature indicates that researchers use a diverse range of objective and subjective items to measure health status, such as health care utilization, hospitalization, use of prescription medication, medical records, symptom reports or complaints, and reports on limitations on activity or energy level. Similarly, this study measured health status by objective items such as frequency of health care utilization

and subjective items referring to sleeping problems, pains, appetite changes, fatigue, and other illness-related symptoms. A problem with this study is that no procedures were used to determine objective reports of health symptoms and health care utilization. This is an important concern as recall distortions and social desirability are potential problems when asking participants to recall symptoms and health care utilization over a period of one year. Similar problems are related to the health behaviour scale used in this study. Although the measure includes items that are similar to those found in numerous other health-behaviour studies, recall distortions and social desirability problems exist when asking participants to recall their health behaviours over a period of one year. It would be possible to take a more accurate measure of health status, health care utilization, and health behaviours if participants were requested to record those items daily, for an extended period of time.

There are also a number of advantages to this study. Most studies found in literature use student samples. However, this study used a young adult sample from the community, making results more generalizeable to the general population.

Another advantage to this study is that a multidimensional model of perfectionism was used. Most research investigating perfectionism used a unidimensional model. By conceptualizing perfectionism as multidimensional, and exploring it as such, it is possible to understand how various expressions of perfectionism are related to health. Thus, this study explored how the various motivational components of perfectionism are linked with health status and health behaviours.

Another advantage with this study is that multiple measures of health status were used. Specifically, health status was measured by two scales which examined health symptoms and health care utilization. The literature defines health status in a number of different ways and many different scales are available to measure the different conceptualizations of health status. As such, each scale measures a different aspect of health status. Thus, this study is unique in that, by including two health status measures, it was able to explore different aspects of health status and determine patterns of relationships between perfectionism and health status.

Future Considerations

As shown above, this study has made a number of significant and unique contributions to the literature on explaining the relationship between perfectionism and health. This raises a number of issues for future consideration. Specifically, the finding that perfectionism is a health risk, and influences health status and health behaviours, brings forth a number of issues that can be explored in future studies. Furthermore, the finding that perfectionism has both adaptive and maladaptive aspects related to health suggests that future considerations include discerning conditions under which perfectionism is adaptive and those under which it is maladaptive.

As perfectionism was shown to be a health risk, it is important to consider other variables that may explain why and under what conditions it is a health risk. One variable that may explain this is locus of control. Internal locus of control involves beliefs about self-control over reinforcement and external locus of control involves beliefs that reinforcements are due to external factors (as reviewed by Hewitt & Flett,

1996). Hewitt and Flett (1996) discuss that individuals with an external locus of control exhibit a range of maladaptive coping responses when confronted with stressors, while individuals with an internal locus of control show more adaptive coping responses. Furthermore, Hewitt and Flett (1996) linked some aspects of perfectionism with characteristics believed to be related to an external locus of control. It is possible that locus of control moderates the perfectionism-health connection. For instance, perfectionists who express an external locus of control tend to use ineffective coping strategies, thus, they may experience prolonged states of stress and physiological arousal, which ultimately affects their health. However, perfectionists who express an internal locus of control, tend to deal with stressors using more effective strategies, thus, they may experience less stress and better health outcomes.

Another consideration is that situational factors that may be playing an important role in the perfectionists' choice of coping strategies, and that these choices affect adjustment. For instance, some situations are more meaningful to perfectionists (e.g., situations related to goal attainment and obstacles to goal attainment) than other situations. Furthermore, some coping strategies have been shown to be adaptive while others shown to be maladaptive. Thus, a perfectionist who chooses maladaptive coping strategies when faced with a situation involving obstacles to goal attainment may experience more health problems than when using these coping strategies to deal with stressful situations not related to goal attainment. Thus, a future study should address situational factors to understand the conditions under which maladaptive coping responses and adaptive coping responses are used, and how these choices

influence health. Such a study may be able to explain the conditions under which perfectionism is a health risk and those conditions under which it is adaptive.

A final consideration involves examining individuals experiencing some form of chronic health problem. Although the model tested in this study was not supported in a general sample, it may be a viable model in a population experiencing serious health problems. For instance, those perfectionists who cope with chronic health problems using avoidance strategies may experience more severe health problems than perfectionists who cope with problem solving or support seeking strategies. Thus, it may be valuable to examine this model in a sample of individuals already experiencing health problems.

In conclusion, although this study did not find support for the moderating model, a number of significant discoveries were made. Researchers, medical practitioners and clinicians may find value in this study's empirical finding that perfectionism is a health risk and that it has adaptive features related to health. First, researchers can continue to explore why perfectionism is a health risk, and determine conditions under which perfectionism is maladaptive and conditions under which it is adaptive. Medical practitioners and other health-professionals can use this information to educate and instruct individuals on the role they play in affecting their own health and on ways to overcome self-created barriers to somatic health. This includes training individuals on how perfectionistic characteristics and motivations affect the choices they make in setting goals, in coping with stress, and in taking care of themselves. This may help individuals make effective changes in their lives that will

positively influence their health status, and the choices they make in their involvement in health behaviours.

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APPENDIX A

Multidimensional Perfectionism Scale (MPS)

Listed below are a number of statements concerning personal characteristics, traits, and attitudes. Read each item and decide whether you agree or disagree and to what extent. If you strongly agree, answer with a 7; if you strongly disagree, answer with a 1; if you feel somewhere in between, answer with any of the numbers between 1 and 7. If you feel neutral or undecided the midpoint is 4.

1. When I am working on something I cannot relax until it is perfect

   1 2 3 4 5 6 7

2. I am not likely to criticize someone for giving up too easily

   1 2 3 4 5 6 7

3. It is not important that the people I am close to are successful

   1 2 3 4 5 6 7

4. I seldom criticize my friends for accepting second best

   1 2 3 4 5 6 7

5. I find it difficult to meet others' expectations of me

   1 2 3 4 5 6 7

6. One of my goals is to be perfect in everything I do

   1 2 3 4 5 6 7

7. Everything that others do must be of top-notch quality

   1 2 3 4 5 6 7

8. I never aim for perfection in my work

   1 2 3 4 5 6 7

9. Those around me readily accept that I can make mistakes too

1 2 3 4 5 6 7

10. It doesn't matter when someone close to me does not do their absolute best

1 2 3 4 5 6 7

11. The better I do, the better I am expected to do

1 2 3 4 5 6 7

12. I seldom feel the need to be perfect

1 2 3 4 5 6 7

13. Anything I do that is less than excellent will be seen as poor work by those around me

1 2 3 4 5 6 7

14. I strive to be as perfect as I can be

1 2 3 4 5 6 7

15. It is very important that I am perfect in everything I attempt

1 2 3 4 5 6 7

16. I have high expectations for the people who are important to me

1 2 3 4 5 6 7

17. I strive to be the best at everything I do

1 2 3 4 5 6 7

18. The people around me expect me to succeed at everything I do

1 2 3 4 5 6 7

19. I do not have very high standards for those around me

1 2 3 4 5 6 7

20. I demand nothing less than perfection of myself

1 2 3 4 5 6 7

21. Others will like me even if I don't excel at everything

1 2 3 4 5 6 7

22. I can't be bothered with people who won't strive to better themselves

1 2 3 4 5 6 7

23. It makes me uneasy to see an error in my work

1 2 3 4 5 6 7

24. I do not expect a lot from my friends

1 2 3 4 5 6 7

25. Success means that I must work even harder to please others

1 2 3 4 5 6 7

26. If I ask someone to do something, I expect it to be done flawlessly

1 2 3 4 5 6 7

27. I cannot stand to see people close to me make mistakes

1 2 3 4 5 6 7

28. I am perfectionistic in setting my goals

1 2 3 4 5 6 7

29. The people who matter to me should never let me down

1 2 3 4 5 6 7

30. Others think I am okay, even when I do not succeed

1 2 3 4 5 6 7

31. I feel that people are too demanding of me

1 2 3 4 5 6 7

32. I must work to my full potential at all times

1 2 3 4 5 6 7

33. Although they may not show it, other people get very upset with me when I slip up

1 2 3 4 5 6 7

34. I do not have to be the best at whatever I am doing

1 2 3 4 5 6 7

35. My family expects me to be perfect

1 2 3 4 5 6 7

36. I do not have very high goals for myself

1 2 3 4 5 6 7

37. My parents rarely expected me to excel in all aspects of my life

1 2 3 4 5 6 7

38. I respect people who are average

1 2 3 4 5 6 7

39. People expect nothing less than perfection from me

1 2 3 4 5 6 7

40. I set very high standards for myself

1 2 3 4 5 6 7

41. People expect more from me than I am capable of giving

1 2 3 4 5 6 7

42. I must always be successful at school or work

1 2 3 4 5 6 7

43. It does not matter to me when a close friend does not try their hardest

1 2 3 4 5 6 7

44. People around me think I am still competent even if I make a mistake

1 2 3 4 5 6 7

45. I seldom expect others to excel at whatever they do

1 2 3 4 5 6 7

Self oriented perfectionism is comprised of the following items: 1, 6, 8, 12, 14, 15, 17, 20, 23, 28, 32, 34, 36, 40, 42.

Other oriented perfectionism is comprised of the following items: 2, 3, 4, 7, 10, 16, 19, 22, 24, 26, 27, 29, 38, 43, 45.

Socially prescribed perfectionism is comprised of the following items: 5, 9, 11, 13, 18, 21, 25, 30, 31, 33, 35, 37, 39, 41, 44.

The following items are reverse scored: 2, 3, 4, 8, 9, 10, 12, 19, 21, 24, 30, 34, 36, 37, 38, 43, 44, 45.

APPENDIX B

Symptom Reports Scale

Many of us have times when things just do not seem right or we do not feel so well for one reason or another. How often have each of the following happened to you in the past year?

Values indicate: 1 = never, 2 = rarely, 3 = sometimes, 4 = fairly often, 5 = always.

1. Had trouble getting to sleep or staying asleep?

1 2 3 4 5

2. Ill health affected the amount of work you did?

1 2 3 4 5

3. Felt nervous, fidgety or tense?

1 2 3 4 5

4. Bothered by shortness of breath when you were not exercising or working hard?

1 2 3 4 5

5. Bothered by pains and ailments in different parts of your body?

1 2 3 4 5

6. Lost your appetite?

1 2 3 4 5

7. Had spells of dizziness?

1 2 3 4 5

8. Your state of health prevented you from carrying out things you like to do?

1 2 3 4 5

9. Troubled by headaches?

1 2 3 4 5

10. Had arthritis or swelling in any joint?

1 2 3 4 5

11. Bothered by an upset stomach?

1 2 3 4 5

12. Had colds?

1 2 3 4 5

13. Had ulcers?

1 2 3 4 5

14. Had allergies?

1 2 3 4 5

15. Had the flu?

1 2 3 4 5

16. Had stomach aches?

1 2 3 4 5

17. Had fractures (broken bone)?

1 2 3 4 5

18. Had a loss of energy?

1 2 3 4 5

19. Had fatigue, tiredness?

1 2 3 4 5

20. Felt slowed down?

1 2 3 4 5

21. Had trouble moving?

1 2 3 4 5

Health Service Utilization

1. About how many visits to a doctor have you made in the last two years (excluding routine checkups)?

1 2 3 4 5 6 7

2. About how many days were you sick in bed in the past two years?

1 2 3 4 5 6 7

3. Are you currently under a doctor's care? Yes____ No____

APPENDIX C

Health Behaviour Scale

In the past year, how often have you done each of the following:

Values indicate: 1 = never, 2 = rarely, 3 = on occasion, 4 = fairly often, 5 = always.

1. maintained desired weight	1	2	3	4	5
2. had a regular dental checkup	1	2	3	4	5
3. limited intake of foods with fats/sugar	1	2	3	4	5
4. got strenuous exercise	1	2	3	4	5
5. took vitamins	1	2	3	4	5
6. used an illicit drug	1	2	3	4	5
7. had a good breakfast	1	2	3	4	5
8. had blood pressure checked	1	2	3	4	5
9. took medication as prescribed	1	2	3	4	5
10. ate junk food	1	2	3	4	5
11. examined breasts (women only)	1	2	3	4	5
12. had PAP smear test (women only)	1	2	3	4	5
13. saw physician when ill	1	2	3	4	5
14. smoked cigarettes	1	2	3	4	5
15. drank alcoholic beverages	1	2	3	4	5
16. drove without seatbelts	1	2	3	4	5
17. drove when too tired	1	2	3	4	5
18. drove when very angry	1	2	3	4	5
19. drove after a few drinks	1	2	3	4	5

Diet and exercise is comprised of items: 1, 3, 4, 5, 7, 10.

Substance use is comprised of items: 6, 14, 15.

Safe driving is comprised of items: 16, 17, 18, 19.

Medical Compliance is comprised of items: 2, 8, 9, 11, 12, 13.

The following items are reverse scored: 6, 10, 14, 15, 16, 17, 18, 19.

APPENDIX D

Coping Strategies Indicator

Different people have different ways of reacting to things. We are interested in how you have handled problems that were important to you and which may have caused you to worry. How much of each of these did you use in handling those problems?

Values indicate: 1 = not at all, 2 = a little, 3 = a lot.

1. Tried to solve the problem

   1 2 3

2. Confided your fears and worries to a friend

   1 2 3

3. Avoided being with people in general

   1 2 3

4. Tried to carefully plan a course of action rather than acting on impulse

   1 2 3

5. Sought reassurance from people who know you best

   1 2 3

6. Daydreamed about better times

   1 2 3

7. Brainstormed all possible solutions before deciding what to do

   1 2 3

8. Talked to people about the situation because talking about it helps you feel better

   1 2 3

9. Wished that people would just leave you alone

   1 2 3

10. Set some goals for yourself to deal with the situation

1 2 3

11. Accepted sympathy and understanding from friends who had the same problem

1 2 3

12. Identified with characters in novels, movies or on TV

1 2 3

13. Tried different ways to solve the problem until you found one that worked

1 2 3

14. Went to a friend for advice on how to change the situation

1 2 3

15. Watched television more than usual

1 2 3

Problem solving is comprised of items: 1, 4, 7, 10, 13.

Support seeking is comprised of items: 2, 5, 8, 11, 14.

Avoidance is comprised of items: 3, 6, 9, 12, 15.